JVC **Service Manual**

THREE CCD COLOR VIDEO CAMERA
DREI CCD-FARBVIDEO KAMERA
CAMERA VIDEO COULEUR A TROIS CCD

MODEL
MODELL
MODÈLE **KY-27C**

VICTOR COMPANY OF JAPAN, LIMITED

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No. 60101

JVC Service Manual

(Lens, viewfinder, microphone and camera adapter are optional)

MODEL KY-27C

NOTES

- This service manual only describes the matters that are different from the KY-27B.
  On servicing, refer to the service manuals (No. 60061 for NTSC and No. 60072 for NTSC/PAL) for the KY-27, (No. 60087) for the KY-27B together with this.

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Important Safety Precautions

Prior to shipment from the factory, JVC products are strictly inspected to conform with the recognized product safety and electrical codes of the countries in which they are to be sold. However, in order to maintain such compliance, it is equally important to implement the following precautions when a set is being serviced.

● Precautions during Servicing

1. Locations requiring special caution are denoted by labels and inscriptions on the cabinet, chassis and certain parts of the product. When performing service, be sure to read and comply with these and other cautionary notices appearing in the operation and service manuals.

2. Parts identified by the ⚠ symbol and shaded (▒) parts are critical for safety.
   Replace only with specified part numbers.
   Note: Parts in this category also include those specified to comply with X-ray emission standards for products using cathode ray tubes and those specified for compliance with various regulations regarding spurious radiation emission.

3. Fuse replacement caution notice.
   Caution for continued protection against fire hazard.
   Replace only with same type and rated fuse(s) as specified.

4. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads

5. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers
   4) Insulation sheets for transistors
   5) Barrier

6. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.) wrap ends of wires securely about the terminals before soldering.

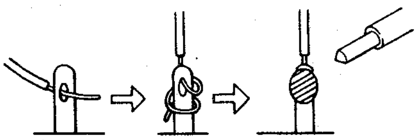


Fig. 1

7. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.)

8. Check that replaced wires do not contact sharp edged or pointed parts.

9. When a power cord has been replaced, check that 10—15 kg of force in any direction will not loosen it.

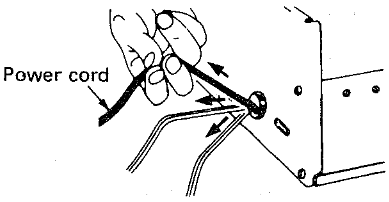


Fig. 2

10. Also check areas surrounding repaired locations.

11. Products using cathode ray tubes (CRTs)
    In regard to such products, the cathode ray tubes themselves, the high voltage circuits, and related circuits are specified for compliance with recognized codes pertaining to X-ray emission. Consequently, when servicing these products, replace the cathode ray tubes and other parts with only the specified parts. Under no circumstances attempt to modify these circuits. Unauthorized modification can increase the high voltage value and cause X-ray emission from the cathode ray tube.

12. Crimp type wire connector
    In such cases as when replacing the power transformer in sets where the connections between the power cord and power transformer primary lead wires are performed using crimp type connectors, if replacing the connectors is unavoidable, in order to prevent safety hazards, perform carefully and precisely according to the following steps.
    1) **Connector part number :** E03830-001
    2) **Required tool :** Connector crimping tool of the proper type which will not damage insulated parts.
    3) **Replacement procedure**
       (1) Remove the old connector by cutting the wires at a point close to the connector.
       Important : Do not reuse a connector (discard it).

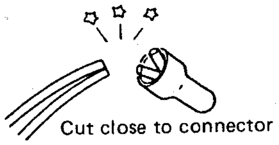


Fig. 3

(2) Strip about 15 mm of the insulation from the ends of the wires. If the wires are stranded, twist the strands to avoid frayed conductors.

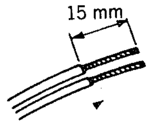


Fig. 4

(3) Align the lengths of the wires to be connected. Insert the wires fully into the connector.

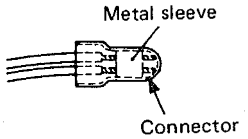


Fig. 5

(4) As shown in Fig. 6, use the crimping tool to crimp the metal sleeve at the center position. Be sure to crimp fully to the complete closure of the tool.

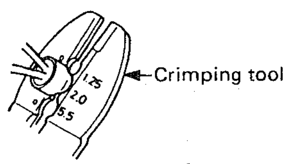


Fig. 6

(5) Check the four points noted in Fig. 7.

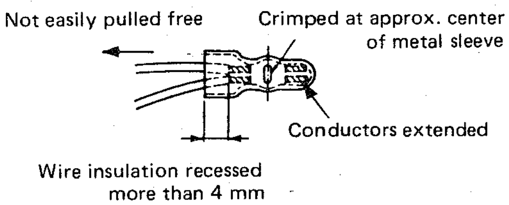

Not easily pulled free
Crimped at approx. center of metal sleeve
Conductors extended
Wire insulation recessed more than 4 mm

Fig. 7

● Safety Check after Servicing

Examine the area surrounding the repaired location for damage or deterioration. Observe that screws, parts and wires have been returned to original positions, Afterwards, perform the following tests and confirm the specified values in order to verify compliance with safety standards.

1. **Insulation resistance test**
   Confirm the specified insulation resistance or greater between power cord plug prongs and externally exposed parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

2. **Dielectric strength test**
   Confirm specified dielectric strength or greater between power cord plug prongs and exposed accessible parts of the set (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.). See table 1 below.

3. **Clearance distance**
   When replacing primary circuit components, confirm specified clearance distance (d), (d') between soldered terminals, and between terminals and surrounding metallic parts. See table 1 below.

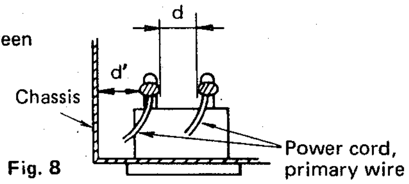


Fig. 8

4. **Leakage current test**
   Confirm specified or lower leakage current between earth ground/power cord plug prongs and externally exposed accessible parts (RF terminals, antenna terminals, video and audio input and output terminals, microphone jacks, earphone jacks, etc.).
   Measuring Method: (Power ON)
   Insert load Z between earth ground/power cord plug prongs and externally exposed accessible parts. Use an AC voltmeter to measure across both terminals of load Z. See figure 9 and following table 2.

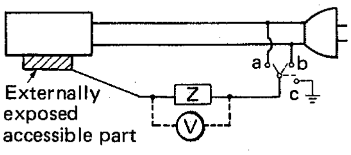


Fig. 9

5. **Grounding (Class I model only)**
   Confirm specified or lower grounding impedance between earth pin in AC inlet and externally exposed accessible parts (Video in, Video out, Audio in, Audio out or Fixing screw etc.).
   Measuring Method:
   Connect milli ohm meter between earth pin in AC inlet and exposed accessible parts. See figure 10 and grounding specifications.

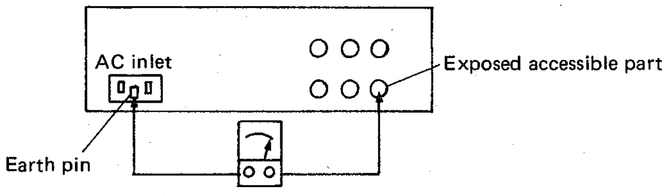


Fig. 10

Grounding Specifications

Region	Grounding Impedance (Z)
USA & Canada	Z ≦ 0.1 ohm
Europe & Australia	Z ≦ 0.5 ohm

AC Line Voltage	Region	Insulation Resistance (R)	Dielectric Strength	Clearance Distance (d), (d')
100 V	Japan	R ≧ 1 MΩ/500 V DC	AC 1 kV 1 minute	d, d' ≧ 3 mm
100 to 240 V			AC 1.5 kV 1 minute	d, d' ≧ 4 mm
110 to 130 V	USA & Canada	—	AC 900 V 1 minute	d, d' ≧ 3.2 mm
110 to 130 V 200 to 240 V	Europe & Australia	R ≧ 10 MΩ /500 V DC	AC 3 kV 1 minute (Class II) AC 1.5 kV 1 minute (Class I)	d ≧ 4 mm d' ≧ 8 mm (Power cord) d' ≧ 6 mm (Primary wire)

Table 1 Specifications for each region

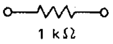
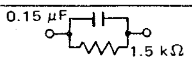
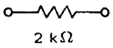
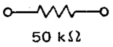
AC Line Voltage	Region	Load Z	Leakage Current (i)	a, b, c
100 V	Japan	 1 kΩ	i ≦ 1 mA rms	Exposed accessible parts
110 to 130 V	USA & Canada	 0.15 μF 1.5 kΩ	i ≦ 0.5 mA rms	Exposed accessible parts
110 to 130 V 220 to 240 V	Europe & Australia	 2 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Antenna earth terminals
		 50 kΩ	i ≦ 0.7 mA peak i ≦ 2 mA dc	Other terminals

Table 2 Leakage current specifications for each region

Note: These tables are unofficial and for reference only. Be sure to confirm the precise values for your particular country and locality.

JVC

VICTOR COMPANY OF JAPAN, LIMITED

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JVC Instructions

THREE CCD COLOR VIDEO CAMERA
KY-19/KY-27C

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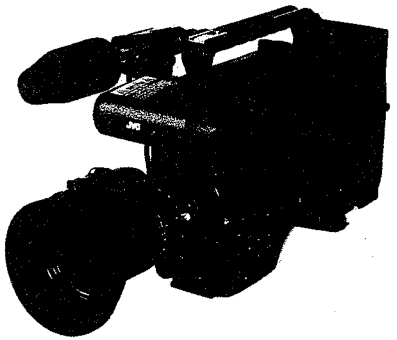

Photo shows the KY-27CH video camera with an optional camera adapter (KA-27), viewfinder (VF-P115), and lens (A14×10 BRM12)

For Customer Use:
Enter below the Serial No. which is located on the top frame. Retain this information for future reference.

Model No. KY-19/KY-27C

Serial No.

CAUTION

RISK OF ELECTRIC SHOCK
DO NOT OPEN

CAUTION: TO REDUCE THE RISK OF ELECTRIC SHOCK.
DO NOT REMOVE COVER (OR BACK)
NO USER-SERVICEABLE PARTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

The lightning flash with arrowhead symbol, within an equilateral triangle is intended to alert the user to the presence of uninsulated "dangerous voltage" within the product's enclosure that may be of sufficient magnitude to constitute a risk of electric shock to persons.

The exclamation point within an equilateral triangle is intended to alert the user to the presence of important operating and maintenance (servicing) instructions in the literature accompanying the appliance.

Due to design modifications, data given in this instruction book are subject to possible change without prior notice.

WARNING:
TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE.

AVERTISSEMENT:
POUR EVITER LES RISQUES D'INCENDIE OU D'ELECTROCUTION, NE PAS EXPOSER L'APPAREIL A L'HUMIDITE OU A LA PLUIE.

POWER SYSTEM

This color video camera should be used with 12 V DC only.

CAUTION:

To prevent electric shocks and fire hazards, do NOT use other than specified power source.

Système d'alimentation

Cette caméra vidéo couleur ne doit être utilisée que sur tension continue de 12 V.

Attention:

Pour éviter tout risque d'incendie ou d'électrocution, n'utilisez aucune autre source d'alimentation.

Information for USA

This device complies with Part 15 of the FCC Rules. Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

INFORMATION (FOR CANADA)
RENSEIGNEMENT (POUR CANADA)

This digital apparatus does not exceed the Class B limits for radio noise emissions from digitial apparatus as set out in the interference causing equipment standard entitled "Digital Apparatus", ICES-003 of the Department of Communications.

Cet appareil numérique respecte les limites de bruits radioélectriques applicables aux appareils numériques de Classe B prescrites dans la norme sur le matériel brouilleur; "Appareils Numériques", NMB-003 édictée par le ministre des Communications.

Changes or modifications not approved by JVC could void the user's authority to operate the equipment.

GUIDES 1

There are three guides to help you find important information as quickly as possible.

Section 1.1 is the **Quick Use Guide** for the cover for the most important information in an emergency. The feature number in the camera diagrams and the topic page are listed.

Section 1.2 is a detailed **Table of Contents.**

Section 1.3 is an **Alphabetical Index** to speed the search of detailed topics.

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2 GENERAL FEATURES AND FUNCTIONS

2.1 INTRODUCTION

Thank you for purchasing the JVC KY-19/KY-27. You can look forward to long and reliable service from your camera and JVC.

If you have any questions feel free to contact your dealer. If you need to contact JVC directly for service or advice, your dealer will be happy to provide you with the necessary contacts.

This camera is a unique and rugged product that fits well with JVC or any other Manufacturers Broadcast and Professional Systems.

It is designed to be simple, flexible and straight forward to use based on considerable feedback from end users with demanding and exacting applications.

- Please note the layout of this manual to help you with your information needs.

1 **The Guide Sections** at the beginning will help you locate information quickly and with great detail.

2 **The General Features Section** will give an overview of the KY-19/KY-27's unique functions that you will want to look into further.

The **Precautions** subsection will help you take care of your camera, and understand some of the limitations as well.

The **Camera Diagram** section is a comprehensive map to each and every control, connector, indicator and function.

3 **The Basic Operation Section** assumes that you or your Technician has Assembled the camera according to section 6 on Installation and Preparation.

This section will allow you to quickly learn to get a decent image successfully to tape, and takes you step by step through a normal "every-day" set up.

4 **Advanced Operations** takes you right inside the features of your camera. You will understand exactly what each feature is intended to accomplish, and perhaps think of some new possibilities yourself.

5 **Operation With Other Equipment** is a step by step approach to use of the camera with Docked VTRs, External VTRs, and RGB devices. Genlock operation and Studio operation with JVC Camera Control Units is covered as well.

6 **Installation and Preparation** shows the great versatility of this camera, From stand alone configuration to dockability with virtually every Broadcast and Professional dockable VTR.

Get the most out of your system by rigorously adhering to the correct procedures.

7 **Additional Information** contains pertinent Specifications, Dimensions, and Accessories.

PRECAUTIONS 2.2

2.2.1 SAFETY

Please read the safety section on the inside front cover of this manual.

If there is any danger of being struck by lightning during outdoor shooting, evacuate to a safe place immediately.

Do not modify the unit or operate it without cover panels to prevent danger.

Do not damage or fray the power cord; otherwise this will cause leakage or electrical shock.

2.2.2 INSTALLATION

Before Turning on the power supply, please double check that you have followed installation procedures precisely.

Take Steps to avoid assembly in dusty, humid or corrosive environments.

When there is any abnormality (i.e. noise, smell, smoke or malfunction), immediately turn the power off and contact your nearest JVC Authorized service agent.

Do Not attempt to repair or open the unit or significant damage can occur immediately.

Severe hot and cold temperatures can damage your camera, especially the CCDs, even if only exposed during storage.

2.2.3 HANDLING PRECAUTIONS

Supply Voltage

Make sure that the power is between 10.5 V and 15 V DC. If the power voltage is too low, abnormal color and increased noise may occur.

Do not exceed 18V DC in any case, or the unit could be damaged.

It is advised to use the optional NB-G1 Battery (With the provided battery holder) or the optional AA-P250 or AA-G10 power adapters.

Protect the Lens and Camera Gate/Optical Block

The camera lens should be protected externally with a Clear or UV filter against accidental scratching, touching or dirt. The external lens cap should be used whenever possible.

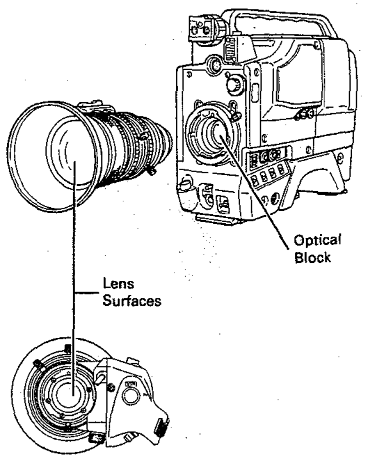
When the lens is changed take special care to avoid contaminating the inner lens surface and camera gate/optical block area with moisture or dust.

If the lens is to be left off at all, use the camera gate dust cap and the internal lens cap.

Temperature range

Do not operate this camera outside a −10 to 45 degrees Centigrade (14 to 113 degrees Fahrenheit) range.

Do not create Overheating from lack of ventilation.



The Sun

Prevent sunlight from directly entering the Lens and Viewfinder to avoid damage.

Shock

Although rugged, this camera should not be dropped and should be protected from shock; Especially the lens.

Do not hold by viewfinder.

This part is not intended to bear weight.

Shipping precautions; Transit versus Shipping.

During normal use the camera should be stored inside the JVC transit case.

However, these cases are NOT intended for shipping by air or post, but for protection while traveling.

If you wish to send the camera by air or post please place it inside the original carton, or pack the transit case securely.

Shipping positions

The Lens should be stored with both internal and external caps if removed from the camera, and the camera gate/optical block protected by the dust cover.

The View finder should be retracted into the shipping position and locked.

Cleaning

When the camera is dusty; clean with a dry, soft cloth. If extremely dirty use a neutral detergent and finish by wiping with a damp cloth.

If soiled with water, oil, solvent, etc. wipe the material off first with a soft cloth, and then clean with gauze soaked in denatured alcohol.

Do not damage the body of the camera by using volatile liquids such as benzine or thinner.

When the Lens is dusty, gently wipe it with a soft brush, or gently wipe it with a soft cloth slightly dampened by lens cleaner. Be careful not to scratch the lens.

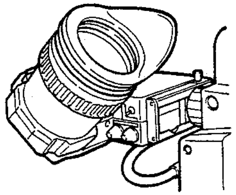
2.2.4 PROTECTION AND PERFORMANCE OF THE CCDs.

Damage to CCD

Shooting direct sunlight or other strong light sources for a long time can damage the CCDs, even though they are less susceptible to burn than tubes.

Make it a rule to close the lens iris and protect the lens with a lens cap after use, as the internal filter does not completely block out light.

If the camera is not going to be used for an extended period of time, be sure to cover the lens with a lens cap.



High temperatures

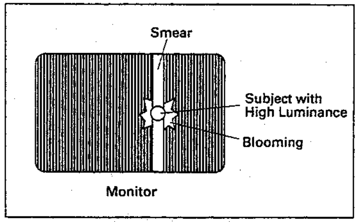
High temperatures can cause CCD sensor pixels to malfunction with the effect of White dots in the image. This condition could damage the CCD, and certainly raises the "fixed pattern" noise level that all CCDs have thus giving a noisy picture.

CCD Smear and Blooming

Due to the physical structure of the CCDs in this camera it is possible to induce vertical streaking or smear when shooting an extremely bright light source.

Another effect is the expansion of light around a bright light or object called Blooming.

Just as you protect your image against lens flare (internal lens reflections); please be careful when shooting a bright light source.



Gain, Noise and White Balance

Higher levels of output gain result in a decrease in the signal to noise ratio, possibly resulting in a noisy picture.

White balance can also be distorted when gain is increased or decreased without performing it again. Use this function in the mode that you expect to shoot.

Moire or Aliasing

Shooting stripes or fine patterns may cause a jagged effect or a banding in fine mesh patterns.

Try repositioning the lens zoom to change the frequency of the detail information and eliminate the distortions.

2.2.5 ELECTROMAGNETIC ENVIRONMENT

Powerful Magnets or Strong Electromagnetic fields can effect or damage the camera.

These are present in large machinery or near a radio or TV transmitter. The picture can become noisy and colors may be distorted.

The camera also produces Electromagnetic fields, and this can affect a wireless microphone or wireless microphone tuner. Try a different frequency to eliminate this.

2.2.6 CAMCORDER USE

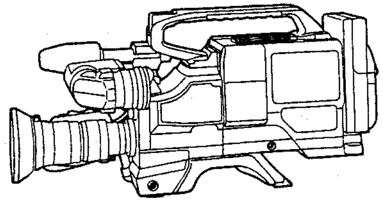
When using this camera docked to a VTR, please refer to that devices manual for precautions.

Typically it is important to protect the docked VTR from humidity and sudden humid environments, from rapid changes in warm to cold and cold to warm temperatures, and from shock or vibration.

Do not try to eject tapes from the Camera/VTR Off/Save or On/Save operating modes.

Do not leave the Camcorder in the Record/Pause mode to avoid using up the battery and damaging the tape.

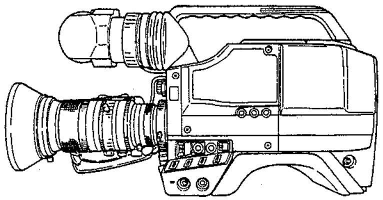
Remove cassettes when not shooting as a camcorder.



2.3 KY-19/KY-27 FEATURES

The KY-19/KY-27 three CCD camera is designed to give you the maximum field and studio utility for Broadcast or Professional applications.

The features are designed with the everyday challenges of shooting in mind.



2.3.1 HIGH PERFORMANCE FEATURES

Advanced Broadcast Specifications, Simple and Rugged Design

JVC is the first to utilize newly developed CCDs with High 800 Line Resolution, High Sensitivity of F9 (KY-27C), F8 (KY-19) at 2000 Lux 750 Line, F8 (KY-19) and a Superb Signal to Noise ratio of 62 dB (NTSC), 60 dB (PAL) at 0 dB Gain.

These pioneering CCDs use extremely low smear "Lens on Chip" Interline Transfer chip technology and take advantage of lens optical characteristics, backed by broad bandwidth camera electronics.

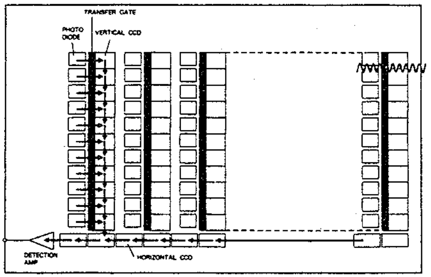
Simple Operation is based on intuitive "HANDS ON" controls and good ergometrics.

Control over Iris, Shutter speed and Gain can be Fully Automatic, or Variable by Priority in the Photographic tradition of Aperture Priority, Shutter Priority and Film Speed(sensitivity).

Rugged Design from stems from JVC experience in the field in the tradition of the KY series.

Internal boards are completely adjustable without the use of extenders through side mounted potentiometers. Internal dip switch settings are minimized.

Operating Temperature ranges from – 10 to 45 degrees C, 14 to 113 degrees F due to broadcast quality circuit components.


TRANSFER GATE
PHOTO DIODE
VERTICAL CCD
OUTPUT
DETECTION AMP
HORIZONTAL CCD

Universal Dockability

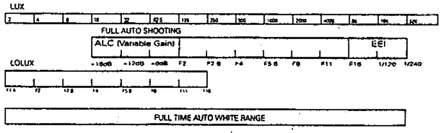
The KY-19/KY-27 is universally dockable to JVC and other Professional S-VHS and MII decks as well as Betacam® Professional, Hi8, and Broadcast Betacam® SP decks.

LOLUX Gain

LOLUX captures scenes never before possible because of low lighting conditions.

In this mode the CCD chip is maximized for low light sensitivity comparable to a Gain Up position of +33 dB (KY-27), +30 dB (KY-19). This Super Sensitivity is ideal for special shooting conditions with almost no lighting.

Good color balance is maintained even down to 2 lux illumination.



FULL AUTO SHOOTING AND LOLUX RANGE (KY-19)

Full Auto Shooting

JVC programming expertise is the first to create this new mode of operation. The Camera person can count on new confidence in capturing the image quickly in any situation, taking advantage of the cameras broad image analysis powers.

This Full Automatic "Program" Shooting mode means that the camera person can count on an excellent picture just by zooming, focusing and pushing the trigger.

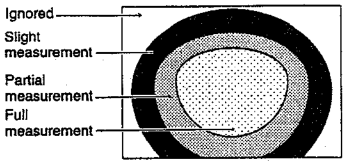
Most conditions likely to be encountered are recognized by the camera and adjusted for by these KY-19/KY-27 image analysis functions.

Through MULTIZONE WEIGHTING of the image area the priority of the sector of the image is applied to the camera's response to light values.

The AUTOMATIC IRIS then works in concert with Enhanced AUTOMATIC LEVEL CONTROL (ALC). Enhanced ALC uses Variable Gain and Variable Shutter Speed (EEI: Extended Electronic Iris) to extend the exposure operating range.

The type of Subject Lighting is compensated for using the AUTOMATIC AVERAGE/PEAK BALANCE function.

Finally the FULL TIME AUTO WHITE function analyses orange/yellow and blue colors in the video image and adjusts for the proper center white balance, with correction to ensure proper skin tones.


Ignored
Slight measurement
Partial measurement
Full measurement

MULTIZONE WEIGHTING

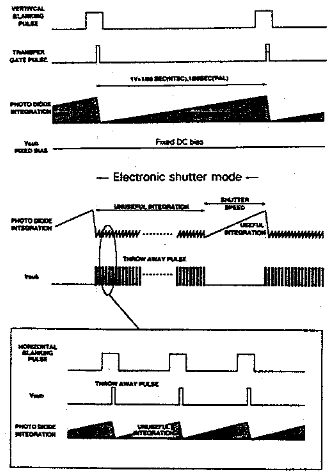
2.3.2 ADVANCED APPLICATIONS FEATURES

Beyond this high level of performance the camera person can manually determine how to shoot the subject matter taking into consideration the needs of advanced applications, and taking advantage of the KY-19/KY-27's image analysis features.

Variable Scan

Flicker Bars in the display image of Computer Monitors are caused by the differing scan rates of the Computer Monitors.

The Variable Scan function can minimize this effect by tuning the camera shutter speed to the precise scan rate of the Display screen.


VERTICAL BLANKING PULSE
TRANSFER GATE PULSE
PHOTO DIODE INTEGRATION
Vsub FIXED BIAS
Fixed DC bias
— Electronic shutter mode —
PHOTO DIODE INTEGRATION
UNUSEFUL INTEGRATION
SHUTTER SPEED
USEFUL INTEGRATION
THROW AWAY PULSE
Vsub
HORIZONTAL BLANKING PULSE
THROW AWAY PULSE
Vsub
PHOTO DIODE INTEGRATION
UNUSEFUL INTEGRATION

VARIABLE SCAN

Aperture Priority

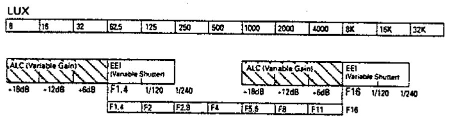
The new Enhanced ALC (Automatic Level Control) mode allows the Video Signal levels to be governed by either the Automatic or Manual Aperture Setting.

The camera then uses both Gain up to +18dB and Shutter Speeds up to 1/250th of a second to adjust for the needed exposure.

The camera operator can set a fixed depth of field under a variety of shooting conditions by setting the Iris manually. The changes are smooth and continuously variable, starting from wherever the Iris is set.

In Manual Iris, 0 dB Gain the cameras range is extended at F1.4 from 62.5 lux down to 8 lux in low light and at F16 from 8000 lux up to 32000 lux in bright light. (KY-19)

This exposure range is the equivalent of 3 F-stops below and 2 F-stops above the actual lens F-stop.



FIXED F STOP RANGES (KY-19)

Camera Setup

CONTOUR (Detail enhancement) and MASTER BLACK (Pedestal) are easily adjustable through the Camera Set-Up Menu. Even in extreme shooting conditions the camera person does not need to open up the camera to adjust these fundamental features.

Iris Over/Under

The reference level for the exposure programming can be adjusted for over and under exposing by approximately a half F-stop.

The Iris Over/Under control is in easy reach on the outside of the camera.

Iris Detection mode

The type of subject lighting can be compensated for.

Subjects with brightly lit highlights that should not be over exposed are shot with PEAK mode.

Subjects close to the background lighting with bright highlights that should not be preserved are shot with AVERAGE mode.

The AUTOMATIC AVERAGE/PEAK BALANCE function (APB) allows the KY-19/KY-27 to analyze if the scene is a Peak or Average situation and continuously vary its response according to changing conditions.

Computer and Remote CCU Control

Studio and other advanced applications can choose from Standalone, Inexpensive or Long range High Precision Camera Control units.

Computer Camera Control is available for basic functions with the optional cable for IBM computers. A optional Cable and Software is available for Macintosh computers.

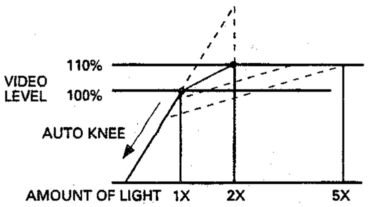
2.3.3 STANDARD FEATURES

Auto Knee

All cameras limit the highest bright signals to keep them with in signal specifications. As the signal approaches this point the constant ratio of brightness to signal is changed.

As the dynamic range of scene brightness increases the KY-19/KY-27 compensates by lowering the point that the ratio change begins to so that brighter values are reproduced within the acceptable range of the video signal.

The Auto Knee circuity extends a scenes light to dark dynamic range reproduction up to five times with out over exposure.



Comprehensive Viewfinder Status Overlay.

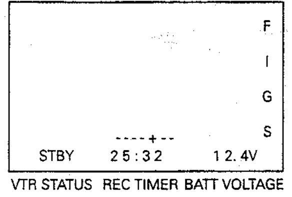
The Comprehensive Viewfinder Status system allows the cameraperson to keep track of Audio levels, Accumulated or Remaining Recording Time, and VTR operation and Battery Voltage and Camera Set-Up.

The video signal and framing are indicated by Zebra video level indication and Safety Zones with center marker.

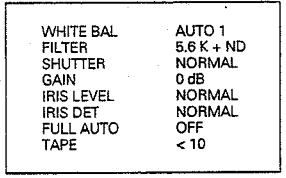
The Set-Up of the camera can be verified completely through the Viewfinder while shooting.

The large 1.5" viewfinder itself has very sharp 600 lines resolution.

STATUS MODE 1



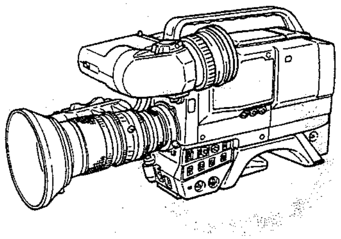
STATUS MODE 2



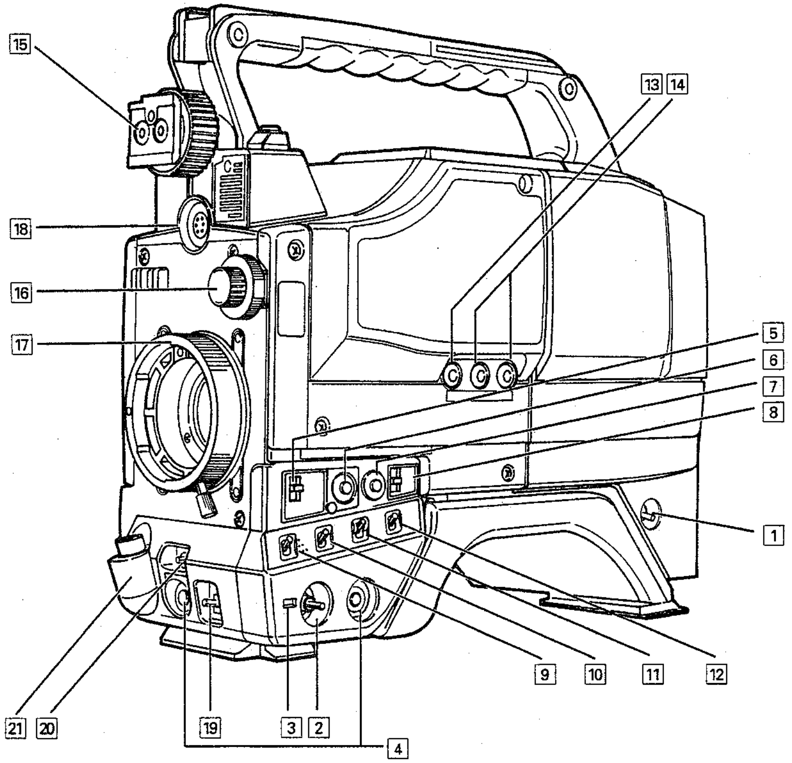
WHITE BAL	AUTO 1
FILTER	5.6 K + ND
SHUTTER	NORMAL
GAIN	0 dB
IRIS LEVEL	NORMAL
IRIS DET	NORMAL
FULL AUTO	OFF
TAPE	< 10

2.3.4 ADDITIONALLY

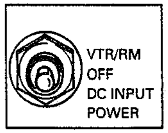
- 800 lines (KY-27C), 750 lines (KY-19) horizontal resolution.
- High F9 (KY-27C), F8 (KY-19) at 2000 lux sensitivity at 0 gain.
- High Signal to Noise ratio of 62 dB (NTSC), 60 dB (PAL) at 0 gain.
- Vibration and impact resistant.
- Compact and light weight.
- No lag, burn resistant, no deflection distortion
- No missregistration from terrestrial magnetism.
- Component, Composite, Y/C and RGB outputs
- Shutter Speeds: 1/60 - 1/2000
- 2H contour (detail) correction
- 4 settings for white balance: Auto 1 and 2, 3200K preset, Full Time Auto White
- New color matrix circuit.



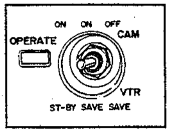
2.4 CAMERA DIAGRAMS: CONTROLS, CONNECTORS, INDICATORS



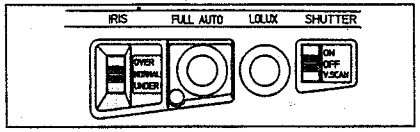
1



2 3



5 6 7 8



2.4.1 SWITCHES FOR CAMERA CONTROL AND SETUP

1 [POWER] POWER MASTER SWITCH (OPTIONAL KA-27)

This switch chooses the type of power source and turns on the camera.

If a VTR is docked there will be a similar Master Power Switch.

VTR/RM : Power is supplied through the Multipin Connector from an external VTR or Remote Control Unit.
OFF : Master Power Off for Camera/KA-27.
DC : Power is supplied from the onboard Battery pack or the 4 pin DC input. The 4 pin input has priority over the on-board battery.
WARNING : Do NOT unplug or plug the power while shooting, even if a battery is installed.

2 [OPERATE] CAMERA/VTR OPERATE SWITCH

ON/ST-BY : (On/Standby) For instant recording. VTR head is spinning in Record/Pause Mode.
ON/SAVE : To conserve power use by VTR. VTR head is stationary. In JVC SVHS decks circuit power is also off. (Hi8 decks have no save function)
OFF/SAVE : To conserve power use by CAMERA and VTR. Viewfinder is off and Camera is off.

3 CAMERA/VTR OPERATE LIGHT

Bright : In ON/ST-BY and ON/SAVE position
Dim : In OFF/SAVE position
Off : KA-27 Power Master switch is Off or Power to unit is exhausted or not connected.

4 [VTR] VTR TRIGGERS (Recording Start/Stop)

These momentary buttons initiate or end recording if the VTR is in the Record/pause mode and the Camera/VTR Operate Switch is in the ON/ST-BY position.

There is a similar switch on the lens Servo, the optional RM-LP80 control unit and the Lens Studio Control Kit.

5 [IRIS] IRIS OVER/NORMAL/UNDER

Switch 5 can be used to adjust the exposure system to over or under expose by about a half F stop.

Push up	for continued over exposure.
Push down	for continued under exposure.
Middle	for normal exposure

Many conditions can cause the detection mode to expose high or low, such as back lit or spot lit situations.

6 [FULL AUTO] FULL AUTO SHOOTING AND INDICATOR LIGHT

This momentary switch turns this function on and off, with a Orange indicator light.

Full Auto Shooting combines the Auto Iris, Variable Gain setting and Variable Shutter Speed to control the exposure automatically.

The Iris is placed in Automatic even if the Auto Iris switch on the lens is in Manual.

The Gain will vary continuously to the maximum of +18 dB when the Iris reaches F2.0.

The Shutter speed will vary continuously to the minimum of 1/250th of a second when the Iris reaches F16. (EEI mode).

In addition the FULL TIME AUTO WHITE function samples colors in the image and determines the appropriate white balance, with proper skin colors as a control.

7 [LOLUX] LOLUX GAIN

LOLUX gain gives extremely low light level sensitivity for special applications.

LOLUX operation takes priority over normal gain operation.

Operation of LOLUX overrides the Variable Gain and Variable Shutter functions in Full Auto Shooting. Gain and Shutter are defaulted to previous switch settings including Variable Scan.

8 [SHUTTER] SHUTTER ON OFF/VARIABLE SCAN

SHUTTER ON :

This mode allows setting of different Shutter speeds.

To change shutter speed push the UP or DOWN SET Buttons **14** after placing this switch in the up and ON position.

The range of shutter speeds cycles between:

→ 1/100, 1/250, 1/500, 1/1000, 1/2000

OFF :

This mode corresponds to the standard 1/60 NTSC.

VARIABLE-SCAN :

This mode helps adjust the shutter speed to match the scan rate of a display or computer monitor.

Place the switch down in the V.SCAN position and then use the UP or DOWN SET Buttons to adjust the speed.

The result will be to eliminate the darkor light horizontal flicker bar. When the bar is the thinnest is the best setting.

If the bar is light the shutter speed is too low.

If the bar is dark the shutter speed is too high.

TO CHANGE THE SHUTTER SPEED OR VARIABLE SCAN AGAIN:

Press the UP or DOWN buttons again to activate the display, and a second time to change the speed.

9 [GAIN] GAIN SELECT SWITCH

The gain function boosts the signal from the CCD sensors.

The pyramid of dots stands for the different sensitivity levels. Two dots and Three dots can be changed in the Camera Set-Up menu.

One dot	: Always equals the OdB gain up position.
Two dots	: When Set Up for either enhanced ALC or +9dB.
Three dots	: Is Set Up for +18dB.
Two dots	: When Set Up for +6dB
Three dots	: Can be Set Up for either Enhanced ALC, +9dB, and +12dB.

(ALC mode is the Enhanced AUTOMATIC LEVEL CONTROL mode in which Variable Gain and EEI (Variable Shutter speed) are used to achieve good video levels based on the Automatic or Manual Iris setting.)

10 DISPLAY SELECT /OFF/ SAFETY ZONE

- STATUS DISPLAY SELECT

Three information display modes are cycled between by pushing this switch repeatedly in the up DISP.SELECT position.

See section 2.4.5.2 for more details.

Mode 0 : Engaged Special Functions and video only are displayed on the right side of the screen.

F =Full Time Auto White
I =Iris level; Over or Under
G =Gain Up; 6dB, 9dB, 12dB, 18dB, **or**
L =LOLUX
S =High Speed Shutter or Variable Scan **or**
FAS =Full Auto Shooting **or**
ALC =Automatic Gain / Variable Shutter mode

Mode 1 : In addition, pressing the DISP. SELECT button up once also shows:

VTR status, Accumulated or Remaining Record Time, Battery and Input DC voltage, and Audio Levels.

Mode 2 : White balance mode
Filter Position
Shutter speed
Gain
Iris level
Iris Detect Mode
Auto shoot on/off
Accum. or Remain Rec time

- SAFETY ZONE SELECT

Three Overscan Safety Zone modes are cycled between by pushing this switch repeatedly down in the ZONE position.

Mode 0 : Video Only
Mode 1 : Safety Outline
Mode 2 : Center Markings and Safety Outline

The Ratio of the safety outline is changeable in Camera Set Up between 4:3 Standard and 16:9 Cinema ratios.

11 [MODE] CAMERA/COLOR BARS MODE

This switches between Camera and Color Bars video output.

12 [W. BAL] WHITE BALANCE AUTO 1/(AUTO2-FAW)/ PRESET

There are four white balance modes possible with this switch.

Auto 1 :White Balance Memory 1 is fixed in this position. If white balance is performed with the switch in this position it will be memorized.

Auto 2 : Can be selected in Camera Set Up as either White Balance Memory 2, or FULL TIME AUTO WHITE.

FULL TIME AUTO WHITE samples the color temperatures of the video image and adjusts for the correct middle white balance, with control for proper skin tones.

Preset : A non-erasable White Balance setting to 3200 degrees Kelvin. This corresponds to normal indoor tungsten incandescent lighting.

An Emergency setting for Indoors with a 3200 K setting or Outdoors in with a 5600 K filter turret setting.

13 [SET] ACCUMULATED RECORD TIME RESET/ CAMERA SET-UP

A. ACCUMULATED RECORD TIME RESET TO ZERO.

Accumulated Record Time is the approximate total VTR Record Time in minutes and seconds, based on the duration between pushing the VTR trigger.

If this is selected in Camera Setup for the Status Display 1 mode the Status display 2 mode will show Remaining Record Time.

TO CLEAR

- First Push the SET button once.
- Then Push the DOWN button once to set the current Accumulated Record time to zero.

This overlay mode is automatically cleared after 5 seconds.

B. CAMERA SET-UP:

- Select by pushing this button twice.

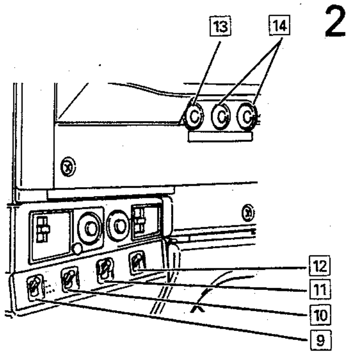
Continued pushing of this button will cycle through the Camera Set-Up Menu.

Pushing the adjacent UP or DOWN button will select a new function condition.

This overlay mode is automatically cleared after 5 sec.

Fundamental Camera operating and Set-up configuration includes:

- Contour (Detail) level,
- Master Black level,
- Iris/Exposure detection mode,
- Gain button assignment,
- Full Time Auto White/Auto White Memory 2,
- Cinema or Standard Safety Zone,
- Accumulated or Remain Record Time assignment,
- Lens Trigger type.

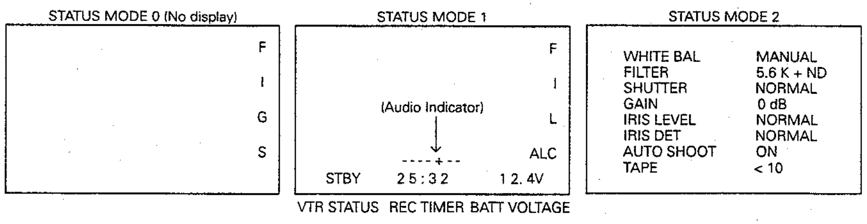


9 GAIN

<table>
<tr><td>•</td><td colspan="5">0dB*</td></tr>
<tr><td>••</td><td>ALC (0 - 18 dB)</td><td>9dB*</td><td colspan="3">6dB</td></tr>
<tr><td>•••</td><td colspan="2">18dB*</td><td>ALC (0-18dB)</td><td>9dB</td><td>12dB</td></tr>
</table>

* Factory Setting

10 STATUS DISPLAY



STATUS MODE 0 (No display)

F
I
G
S

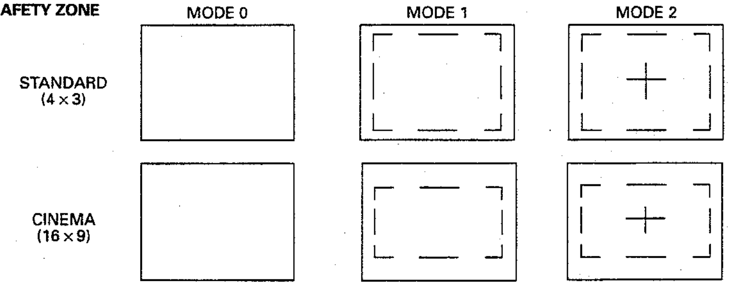
STATUS MODE 1

F
I
L
ALC
(Audio Indicator)
STBY 25:32 12.4V
VTR STATUS REC TIMER BATT VOLTAGE

STATUS MODE 2

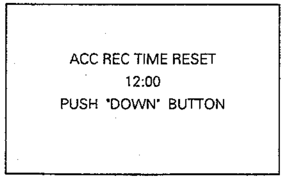
WHITE BAL	MANUAL
FILTER	5.6 K + ND
SHUTTER	NORMAL
GAIN	0 dB
IRIS LEVEL	NORMAL
IRIS DET	NORMAL
AUTO SHOOT	ON
TAPE	< 10

SAFETY ZONE



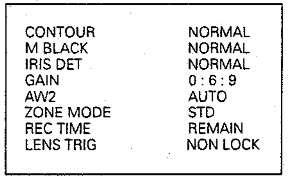
13 SET

ACCUMULATED RECORD TIME RESET



ACC REC TIME RESET
12:00
PUSH "DOWN" BUTTON

CAMERA SET UP



CONTOUR	NORMAL
M BLACK	NORMAL
IRIS DET	NORMAL
GAIN	0 : 6 : 9
AW2	AUTO
ZONE MODE	STD
REC TIME	REMAIN
LENS TRIG	NON LOCK

14 [UP, DOWN] UP, DOWN BUTTONS

These buttons are used in selecting values for SHUTTER SPEED, VARIABLE SCAN, ACCUMULATED RECORD TIME RESET, and CAMERA SET UP.

When the new value is visible in the viewfinder status display the condition is activated; no further buttons need be pressed.

15 VIEWFINDER POST

This post is the viewfinder mount and also a handle mount. The VIEWFINDER SLIDE LOCKING RING is located here.

16 FILTER TURRET

This Turret changes the internal Filter.

The white number is the current Filter number corresponding to a color temperature listed in the table next to the Turret.

The Filter type is also shown in the Status Display 2 mode.

The orange numbers indicate the Filter to be selected by twisting the Turret in that direction. (KY-27 only)

Position 1 :	Clear Filter, for use with color temperatures of 3200 Kelvin. Use indoors or outside at night.
Position 2 :	"Outdoor" Filter, for use with color temperatures of 5600 K. Use outdoors or with HMI lighting.
Position 3 :	"Outdoor" Filter + 1/16ND, for use with very bright conditions and color temperatures of 5600 K. 6.3% of the light is passed on to the CCDs.
Position 4 : (KY-27 only)	Cross Effect Filter. Gives highlights a Cross Star effect. For use with color temperatures of 3200 K.

17 LENS RETAINING RING

Hold the lens and use the knob to twist the ring counterclockwise to release lens.

To mount lens make sure the lens guide pin fits well, and then twist the ring clockwise until firm.

18 VIEWFINDER CONNECTOR

Connect VF-P115 or VF-P400 here.

19 [AUTO] WHITE BALANCE/AUTO SETUP/BLACK BALANCE

- First position a white object to occupy 80% of the center of the image.
- The Lens Iris can be in Auto or Manual Mode.

White Balance:

Is performed by pushing this button upward once momentarily.

Is not activated in Preset, Full Auto Shooting and Full Time Auto White mode.

Auto Set Up/Black Balance:

Automatic Black Balance, then White Balance then Black Balance again are performed by pushing this switch down once momentarily.

Black balance only is performed in Preset, Full Auto Shooting and Full Auto White Mode.

The Iris will be held shut by the Auto Iris during Black Balance.

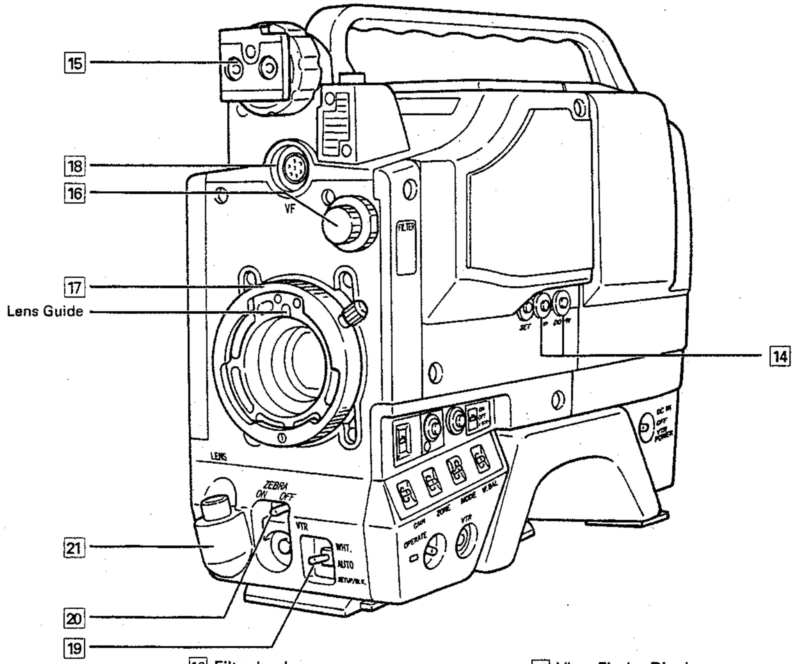
20 [ZEBRA] ZEBRA ON/OFF SWITCH (VIDEO LEVEL INDICATION)

This switch turns on and off the Zebra stripe pattern in areas of highlights between 80 to 90 percent brightness on viewfinder.

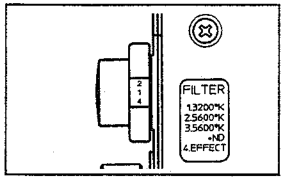
21 LENS CONTROL CONNECTION

Connect either 12pin lens control cable here.

Verify that the lens in use has a locked or unlocked (momentary) VTR trigger, and adjust the Lens Trigger in Camera Set-up.

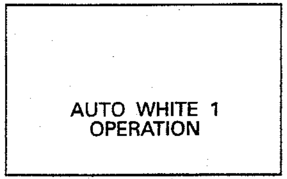


16 Filter knob



(KY-27)

19 View Finder Display



AUTO WHITE 1
OPERATION

See Confirming messages page 29

21 12 Pin Chart

Pin No.	Function	Pin No.	Function
1	RET switch	7	IRIS position
2	VTR trigger	8	IRIS A/R
3	GND	9	–
4	IRIS enforce AUTO	10	–
5	IRIS control	11	–
6	12V DC	12	Y OUTPUT

2.4.2 SWITCHES AND CONTROL OF CAMERA INPUT AND OUTPUT, ACCESSORY MOUNTS

22 HANDLE WITH ACCESSORY SHOE AND STUDIO VIEWFINDER MOUNT

23 MICROPHONE INPUT (POWERED CAMERA MIC)

This unbalanced six pin connector is for the JVC powered Camera Microphones. 9V power is supplied from the camera.

Stereo: MV-P612, MV-P602 Mono: M-K50.

Select this connector with the CAM position of the Mic Select Switch (41) on the KA-27 or VTR.

For MV-P602 and M-K50, additional Cable (VC-P740) is required.

For other microphones see the KA-27 microphone input (38).

24 MICROPHONE HOLDER SCREWS

The KA-A27 included Microphone holder can be mounted here.

25 [RET] RETURN VIDEO SWITCH

Switched to On, RET selects the "RETURN" E to E signal from the VTR or RM-P300 Camera Control Unit to be shown in the viewfinder. There may be an identical switch on the lens servo.

WARNING! With this switch activated the E to E viewfinder video DOES NOT include Status or Set-Up information if the deck is in Record or Record Pause mode.

Selecting certain functions will automatically switch the viewfinder back to Camera Video during operation:
Auto White, Auto Set, Auto Black, Camera Set-Up, Shutter On, Variable Scan On.

26 [MIC] MIC STEREO/MONO

Selects the type of Audio Signal sent to the VTR from the Camera or Adapter microphone inputs.

STEREO : To Record independent signals on the Right and Left channels in the Docked configuration only.

WARNING! A portable VTR connected by a cable can only record the Left microphone channel.

WARNING! A Mono microphone will only record on the left channel of the docked VTR.

MONO : To record the same signal on both channels, Mono or Stereo microphone, Docked or Undocked.

27 GENLOCK PHASE SETTINGS

H : Adjusts the Horizontal Sync Phase of the camera video with respect to the Reference Sync signal sent to the Genlock Input.

SC : Adjusts the Color Subcarrier Phase 360 degrees with respect to the signal sent to the Genlock Input.

28 CHEST REST CONNECTION

Screw in the optional KA-111 chest rest here.

29 TRIPOD BASE RETAINING WEDGE

The KA-510 quick release Tripod Base must be used to put the camera on a tripod or camera stand. Make sure both ends of the camera head are firmly seated with both wedge 29 and clip 35.

Wedge 29 should only be locked into place if the rear clip 35 is engaged

The front clip will hold the camera safely, but without engaging the rear clip, the camera will tend to move slightly in the base.

30 REMOTE CONNECTOR (6 PIN)

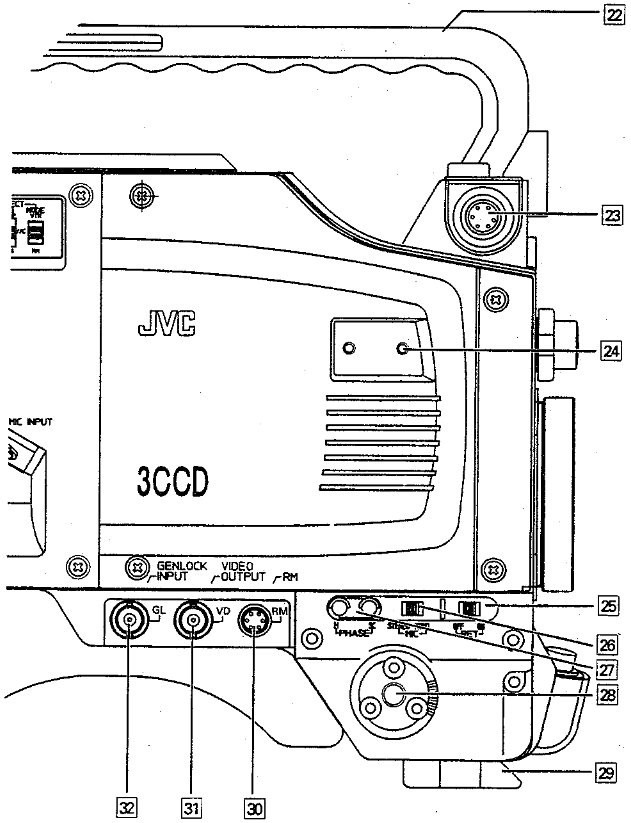
This remote connector allows the connection of the RM-LP80 stand alone remote control unit (optional) and the Computer Control Cables (optional).

31 VIDEO OUTPUT (COMPOSITE)

Video output is for Camera Video only. Return Video from the VTR, or Viewfinder status are not available.

32 GENLOCK INPUT

External Reference Composite video or black burst video input. (VTR video is not stable enough without a Time Base Corrector.)



23 CAMERA MIC PIN CONFIG.

Pin No.	Function
A	R (HOT)
B	+9 V DC
C	GND
D	L (HOT)
E	L (GND)
F	R (GND)

30 REMOTE PIN CONFIG.

Pin No.	Function
1	GND
2	RM/LRM
3	GND
4	SID 2 OUT
5	SID 1 IN
6	+9V OUT

2.4.3 OPTIONAL KA-27 CAMERA ADAPTER

33 VIDEO OUTPUT (Y/C 358 NTSC), (Y/C 443 PAL)

Video output is for Camera Video only, Return Video from the VTR, or Viewfinder status is not available. This output is always active.

34 DC INPUT

This connector is designed for 12 volts DC input.
JVC suggests the use of the AA-P250 in standalone and most docked situations.
The camera will work between 10.5V and 15V.

This connector is activated by the MAIN POWER SWITCH 1, and has priority over the Internal Battery Pack mounted on the back of the KA-27. Turn off the camera before connecting or disconnecting the DC power.

35 TRIPOD MOUNT RETAINING CLIP

Make sure KA-510 tripod base is firmly seated first with camera retaining clip 35 and then locked in place with front retaining wedge 29.

The front clip and wedge will hold the camera safely, but without engaging the rear clip,the camera will tend to move slightly in the base.

36 REMOTE CONTROL/VTR MULTIPIN CONNECTOR

Use to connect to a VTR or the RM-P200 and RM-P300 Camera Control Units. See VTR and Audio Output select switches 42 - 45 for proper signals.

37 INTERCOM CONNECTOR

This is for talk back intercom use with the Camera Control Unit. The Headset should be configured with a connector with the proper tip/ring/sleeve configuration and headset and microphone impedance. This changes with different applications of the remote control units RM-P200 or RM-P300.

38 MICROPHONE INPUT (BALANCED)

This is an input for mic level only; with an balanced XLR three pin connector. (See chart of pin configuration)

39 INTERCOM LEVEL CONTROL

Controls the volume of the intercom headset connected to the Intercom connector.

40 EARPHONE CONNECTION

This connector usually monitors the E to E signal returned from the VTR or program audio from the remote control unit only.
The VTR may need to be in record pause mode for the camera or adapter microphone inputs to be monitored.
Some VHS only VTRs do not send return Audio.

41 CAMERA / ADAPTER MIC SWITCH

This switch determines whether the Camera mic input or the Adapter mic input is active.

42 MIC AUDIO OUTPUT LEVEL SWITCH

Different VTRs or applications of Remote Control Units may require Line or Mic Audio Output levels.
The -20 dB setting activates the camera/adapter mic preamp to bring the output level up to -20dB through the 26 pin cable connection. See chart page 36.

43 COMPONENT VTR SELECT SWITCH MII/BETA

This controls the signal levels for the different Component standard outputs.

44 SIGNAL OUTPUT: COMPONENT/ Y/C /RGB

The signal sent through the 26 pin connector can be selected for one of these three signals in addition to composite video. See chart page 36.

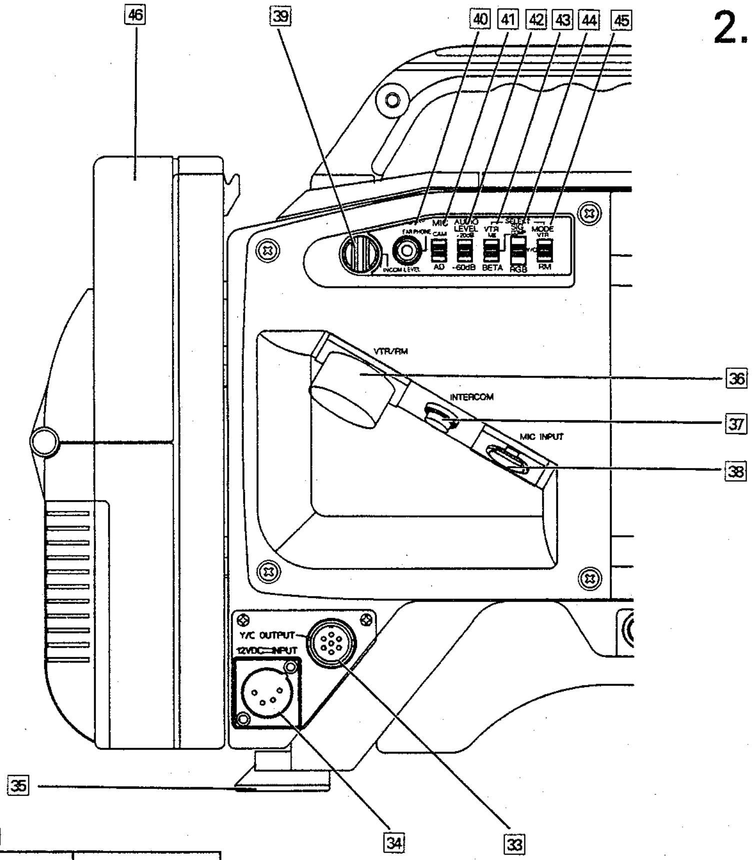
45 VTR/REMOTE CONTROL UNIT SWITCH

- Set to VTR for any kind of VTR connection.
- Set to Remote if RM-P300 or RM-P200 is connected.

Note: Certain 10 pin connector VHS VTRs with Ground Start trigger modes require an internal adjustment to the KA-27. Please consult your service representative. See chart page 36.
This unit is factory set for a +5V trigger.

46 BATTERY HOLDER

Shown here is the standard battery holder. This can be used for Flat shape type and JVC NB-G1 Batteries.
The 4pin 12V DC connector has priority over this battery holder.
Other manufactur's battery holders can be attached instead.



33

Pin No.	Function
1	Y OUT
2	GND
3	NC
4	NC
5	C OUT
6	GND
7	NC

34

Pin No.	Function
1	GND
2	NC
3	NC
4	+12V IN

37

Pin	Function
TIP	MIC
RING	EARPHONE
SLEEVE	GND

38

Pin No.	Function
1	GND
2	HOT
3	COLD

2.4.4 OPTIONAL VIEWFINDER VF-P115 (ENG)

1 SLIDE LOCK
This stopper screw prevents the viewfinder from coming off the camera.

2 VIEWFINDER SHOE
Attaches to the Viewfinder Post on camera.

3 VIEWFINDER CABLE
Connect to camera socket **18**.

4 CONTRAST
Controls the level of Viewfinder contrast.

5 BRIGHT
Controls the level of Viewfinder brightness.

6 TALLY SWITCH
Set this switch to off if you do not want to inform the subjects by the Tally light that they are being recorded.

7 TALLY LIGHT
Lights when recording is in progress.

8 EYEPIECE
Blocks light from viewfinder screen and holds eye optics.

The Eyepiece can be opened to view the screen directly.

The Eyepiece can be rotated up and down for the best shooting position.

9 EYEPIECE FOCUSING RING
Loosen this ring and move the Eyepiece backward and forward to focus the viewfinder for the operators vision.

10 VIEWFINDER SLIDE LOCKING RING
This ring on the camera viewfinder post can be loosened to move the viewfinder to the left or right for the best operator comfort.

WARNING!: Avoid Over Heating if a light is mounted on the camera handle accessory shoe!

2.4.5 VIEWFINDER WARNING INDICATIONS

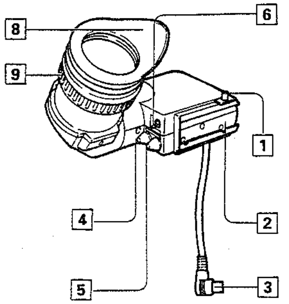
2.4.5.1 VIEWFINDER WARNING LIGHTS

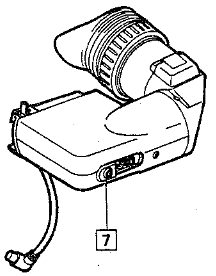
11 BATTERY LIGHT
This lights red when battery voltage becomes too low for the camera to operate.

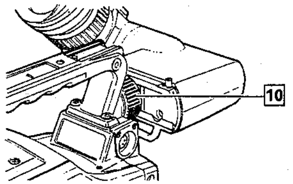
Some VTRs signal low battery with the REC/ALARM light.

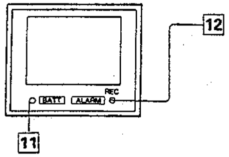
12 REC/ALARM LIGHT
This light shines for these conditions.

Solid Green	:	● While recording.
Blinks Green	:	● While the VTR prerolls before recording. ● If the Tape is finishing. ● If the VTR Malfunctions. ● For some VTRs this indicates Low Battery.









TO CLEAR THE "BATTERY ALARM LIGHT"

To clear the "BATTERY ALARM" warning light, the power must be turned OFF once on the camera.

If the VTR is powered separately, this means the camera must still be turned OFF once to clear the display

2.4.5.2 VIEWFINDER WARNING MESSAGES

Function Failures:

WHITE BALANCE/BLACK BALANCE function

AUTO WHITE 1, 2 OBJECT ERROR	Check whether the object being shot is white enough. Check for proper filter
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO WHITE 1, 2 OVERLIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected
ERROR	Circuit trouble exists. Check with JVC service center.

Automatic Warnings:

LOW BATTERY	This blinks when the VTR or Camera battery level falls too low.

< 10

This indication blinks with docked professional SVHS VTRs and docked Betacam SP VTRs with the KA-B20/B27 adapter.

There are less than 10 minutes tape.

< 5

This indication blinks with docked MII VTRs with the KA-M20 adapter and docked Betacam SP VTRs with the KA-B20/B27 adapter.

There are less than 5 minutes tape.

TAPE NEAR END

This indication blinks with docked JVC professional SHS VTRs, docked MII VTRs with the KA-M20 adapter, docked Betacam SP VTRs with the KA-B20/B27 adapter.

There are less than 3 minutes of tape remaining

Messages displayed for JVC Docked Professional SVHS decks only:

TAPE END	The tape has run out.
VTR WARNING	The VTR is not operating due to Condensation on the video heads, Servo failure, or other malfunctions

VTR OP MISS?	VTR OPERATION MISSED.

- The Docked JVC SVHS VTR may not have been placed in Record/Pause mode. Press the Record and Play buttons to activate Record/Pause.
- The OPERATE switch 2 may be in ON/SAVE. The Save function stops head rotation and turns off the power to the circuitry in JVC Professional SVHS decks.
- Check the Operate switch on SVHS Dockable VTRs. This activates the SAVE function.
- Check for missconnection.

WHITE BALANCE/BLACK BALANCE

AUTO WHITE 1
OBJECT ERROR

Automatic Warnings:

< 5

TAPE END

VTR TRIGGER

VTR OP MISS ?

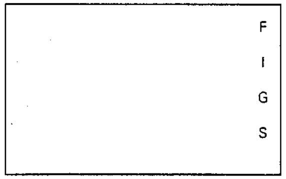
2.4.6 STATUS INDICATIONS (ON SCREEN)

1 To manually check important Status Conditions, activate the overlay display by pushing the Display Select switch (Camera **10**) up momentarily. The display cycles between 3 modes.

Mode 0: Engaged Special Functions and video only are displayed on the right side of the screen.

F = Full Time Auto White
I = Iris level; Over or Under
G = Gain Up; 6dB, 9dB, 12dB, 18dB, **or**
L = LOLUX
S = High Speed Shutter or Variable Scan **or**
FAS = Full Auto Shooting **or**
ALC = Automatic Gain / Variable Shutter mode

STATUS MODE 0

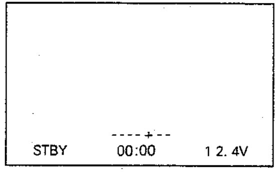


Mode 1: In addition, pressing the DISP. SELECT switch up once also shows:

VTR Condition: SAVE, STBY, REC.
Recording Time: Accumulated or Remaining minutes and seconds.
Battery Voltage: Volts,Tenths of Volts
Audio Levels: VU readings (seven steps)

-18 -12 -6 -3 0 +3 +6

STATUS MODE 1



VTR STATUS REC TIMER BATT VOLTAGE

The Audio Level display is available only from some dockable VTRs.

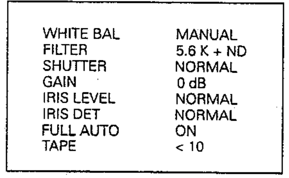
VTRs without return audio or portable VTRs will not give an audio level display.

The viewfinder 0 dB level must be set to match the VTR meter 0 d B audio level.

Mode 2: Press Display button Twice.
This safely shows most camera settings. Parameters can not be adjusted.

WHITE BAL : PRESET, AUTO 1, AUTO 2, FAW, MANUAL
FILTER : 3.2K, 5.6K, 5.6+ND, Effect (KY-27 only)
SHUTTER : 1/100 to 1/2000, Variable Scan Value
GAIN : OdB, 6dB, 9dB, 12dB, 18dB, LOLUX, ALC
IRIS LEVEL : OVER, NORMAL, UNDER
IRIS DET : NORMAL, AVG, PEAK, APB
FULL AUTO : ON, OFF
TAPE : (REMAIN) <10,<5, TAPE NEAR END, TAPE END
(ACCUM) Minutes:Seconds

STATUS MODE 2



WHITE BAL	MANUAL
FILTER	5.6 K + ND
SHUTTER	NORMAL
GAIN	0 dB
IRIS LEVEL	NORMAL
IRIS DET	NORMAL
FULL AUTO	ON
TAPE	< 10

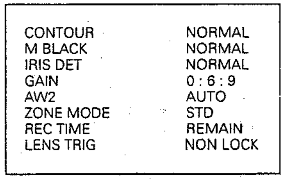
2 CAMARA SETUP

To check the CAMERA SET UP press the **13** SET button twice.

WARNING! This Mode can also change a setting if the UP or DOWN button is pressed.

CONTOUR : -10 to -1, NORMAL, 1 to 10
M BLACK : -10 to -1, NORMAL, 1 to 10
IRIS DET : AVG, PEAK, APB, NORMAL
GAIN : One Dot:Two Dots:Three dots = 0:6:9, 0:6:12, 0:6:ALC, 0:9:18, 0:ALC:18
AW2 : AUTO, FAW
ZONE MODE : STD, CINEMA
REC TIME : REMAIN, ACCUM
LENS TRIG : NONLOCK, LOCK

CAMERA SET UP



CONTOUR	NORMAL
M BLACK	NORMAL
IRIS DET	NORMAL
GAIN	0 : 6 : 9
AW2	AUTO
ZONE MODE	STD
REC TIME	REMAIN
LENS TRIG	NON LOCK

3 CONFIRMING MESSAGES

The Status Display mode 0 and mode 1 special Function Indications are present while each function is engaged.

In addition the following messages appear briefly for confirmation while various functions are turned on or off.

White Balance:

WHITE BAL AUTO 1,	WHITE BAL AUTO 2,
WHITE BAL FAW,	WHITE BAL PRESET
AUTO WHITE1 (OR 2) OPERATION	AUTO WHITE1 (OR 2) COMPLETED

Black Balance:
AUTO BLACK OPERATION AUTO BLACK COMPLETED

Filter:
FILTER 3.2K, 5.6K, 5.6K+ND, FILTER EFFECT (KY-27 only)

Gain:
GAIN 0dB, 6dB, 9dB, 12dB, 18dB, GAIN ALC

Shutter:
SHUTTER 1/100 (U version) / 1/120 (E version), 1/250, 1/500, 1/1000, 1/2000, SHUTTER NORMAL

Variable Scan:
SHUTTER
1/60.1 – 1/2084.6 (KY-19 U version)
1/50.1 – 1/2067.8 (KY-19 E version)
1/60.1 – 1/2074.6 (KY-27C U version)
1/50.1 – 1/2061.8 (KY-27C E version)

Iris:
IRIS OVER, IRIS NORMAL, IRIS UNDER

LOLUX:
LOLUX ON, LOLUX OFF

Zebra:
ZEBRA ON, ZEBRA OFF

Full Auto Shooting:
Full Auto ON, Full Auto OFF

4 VIEW FINDER ABBREVIATIONS

ACCUM. — Total Time with Record Trigger On
AUTO — Auto White Memory mode
ALC — Automatic Level Control for Iris and Shutter
APB — Automatic Average/Peak Balance
AVG — Average exposure detection mode
AW2 — Auto White Memory 2
CINEMA — 16:9 Safety Zone ratio
CONTOUR — Detail enhancement
EFFECT — Cross Star Effect 3200 K (KY-27 only)
F — Full Time Auto White engaged
FAS — Full Auto Shooting engaged
FAW — Full Time Auto White
G — Gain engaged; 6dB, 9dB, 12dB, 18dB
I — Iris Level Over or Under engaged
IRIS DETECT — Detection mode on which subject exposure is based.
IRIS LEVEL — Over or under exposure mode.
L — LOLUX engaged
LENS TRIG — Different Lens trigger modes
LOCK — Lens trigger mode (Usually 8pin)
LOLUX — Highest Electronic Gain
MANUAL — White Balance control by Remote CCU
M BLACK — Master Black
NONLOCK — Lens trigger mode (Usually 12 pin)
NORMAL — Normal
PEAK — Peak exposure detection mode
REMAIN — Approx. remaining Tape in minutes
S — Shutter or Variable Scan engaged
SAVE — VTR in power save mode
STBY — VTR in standby to record mode
STD — 4:3 Safety ratio
TAPE NEAR END — Less than 3 minutes
ZONE MODE — Safety Zone aspect ratio

3.2K — 3200 Kelvin color temperature
5.6+ND — 1/16 light admitted, 5600 K color temp.
<10 — Less than 10 minutes (Some VTRs, see page 27)
<5 — Less than 5 minutes (Some VTRs, see page 27)

2.4.7 LENS

A typical lens available with these camera is the Fujinon S14x7.5B12 for KY-19 and A14x10BRM-12 for KY27.

[1] FOCUS RING

Manual focus ring.
Focus distance indicated.

[2] ZOOM LEVER/RING

Manual Zoom ring with lever.
Deactivate Servo Zoom with switch [12].
Lens Zoom Length is indicated.

[3] IRIS RING

Manual Iris ring
Deactivate Auto iris with switch [6].

[4] BACK FOCUS RING

For Set-up Back Focus adjustment only.
Secure with the Screw knob.

[5] MACRO FOCUS RING (CLOSE-UP)

Manually focus with this ring at ranges as near as 2 cm from the lens front with the ring turned completely clockwise.

Normal focusing and zooming not possible in this mode.

[6] IRIS MODE SWITCH

A : Auto iris On and Remote operation.
M : Manual iris operation.

[7] MOMENTARY AUTO IRIS

In Manual Iris mode (M), pushing this button activates the Auto Iris Function while it is held down only.

[8] ZOOM SERVO CONTROL

Pushing this lever in the W direction makes the lens move wider.

Pushing this lever in the T direction makes the lens move tighter.

Pushing harder changes the speed of the Zoom. Turn this lever on with switch [12].

[9] RETURN VIDEO (RET)

The E to E signal from the VTR attached or the Remote Control Unit can be monitored in the viewfinder while pushing this switch.

Viewfinder Status information is not available.

[10] VTR TRIGGER

To start shooting push once.
To stop shooting push again.

[11] REMOTE ZOOM/IRIS CONTROL CONNECTOR

For use with Studio or Teleconferencing remote control units.

[12] ZOOM MODE KNOB

S : Servo Zoom On
M : Manual Zoom mode.

[13] FILTER POSITION

Protect the lens with a 72mm/0.75 pitch Clear or UV filter by screwing on to the front inside of the lens hood.

Other filters can be used for various effects.

[14] REAR LENS SURFACE

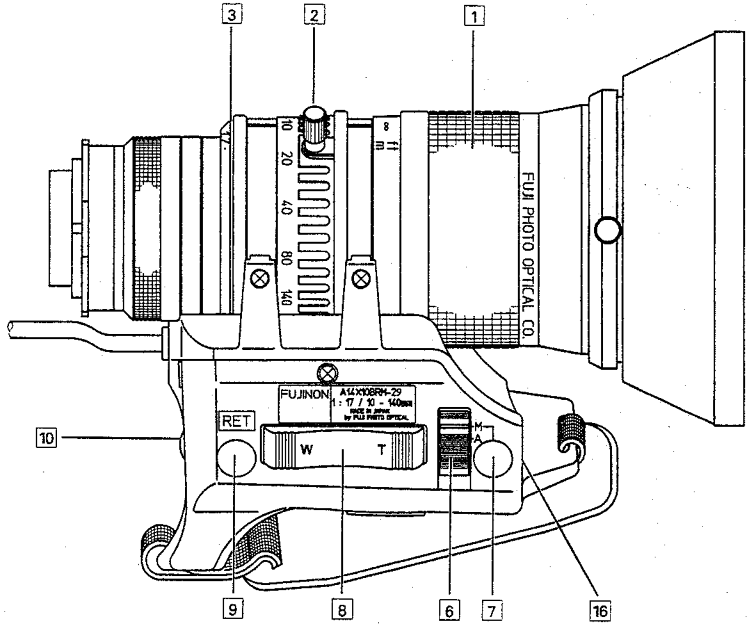
Protect with special cover.

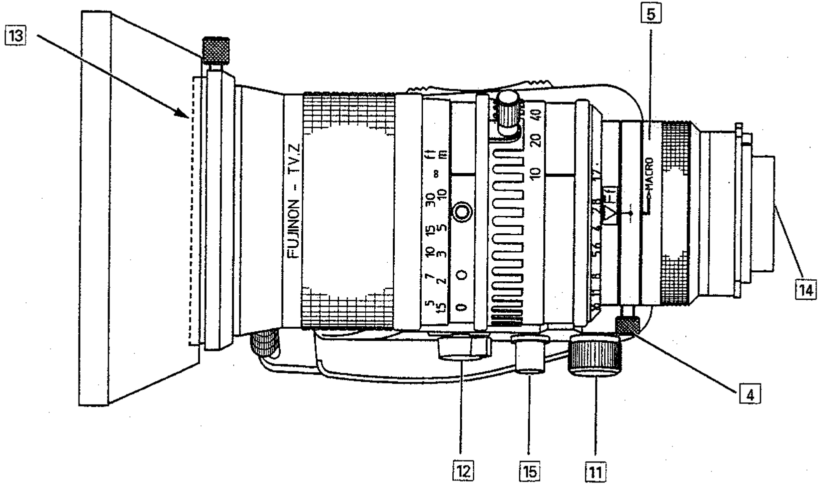
[15] REMOTE FOCUS CONTROL CONNECTOR

To connect with an optional focus servo unit.

[16] S.

Iris speed adjusting potentiometer.





3 OPERATION

3.1 POWER SUPPLY

There are five methods of supplying power to KY-19/KY-27:

KA-27 or Docked VTR Master Power switch set to DC:
- AC Power Adapter through KA-27/VTR 4pin DC plug
- 12V DC Battery through KA-27/VTR 4pin DC plug
- Battery Holder mounted on KA-27/VTR

KA-27 Master Power switch set to RM/VTR:
- VTR through multi pin cable
- Remote Control Unit RM-P200 or RM-P300 through multi pin cable

3.1.1 TYPICAL BATTERY POWER USAGE

The camera, viewfinder and KA-27 adapter power use is 12.4W. An 2.3 ampere hour battery should last about 110 minutes powering the camera alone.

A typical docked VTR can use between 8.5W and 16W DC power. The camera and viewfinder alone use about 11.9W.

An average 2.3 Ampere/Hour Flat shape type battery should last between 40 and 70 minutes based on the VTR.

Additional use of the Lens Zoom will reduce battery life.

Additional use of the Save function will extend battery life.

This chart is for expected battery life.

This configuration is for the KY-19/KY-27 with Lens and the VF-P115 Viewfinder. Portable VTR's are with the KA-27 adapter.

Sony battery times based on Sony Literature.

WATTS	DOCKED/PORT.VTR	BATTERY	BAT TIME
54.4	27 KR-M440	5ah BATT	80
41.4	27 BVW-50	BP-90	>90
31.4	27 BR-S405/411 port	NB-G1	30
29.3			
28.5	27 BVV-5 port	NP-1B	40
28	27 BR-S411 dock	NP-1B	40
27	27 KR-M240	NB-G1	40
25.4	27 BVU-150	2 NP-1B	90
26	27 BVV-5 dock	NP-1B	45
24	27 BR-S420C	NP-1B	55
22	27 PVV-1	NP-1B	60
20.9	27 EVV-9000 port	NP-1B	65
20.5	27 EVV-9000 dock	NP-1B	70
12.4	27 KA27	NP-1B	>110
11.9	27 VF ONLY	—	—

This table is for Typical and Maximum power usage. Typical power usage is for operation of normally adjusted camera. Maximum power usage is for extreme situations.

	Typical		
Camera Viewfinder	KY-19/KY-27 VF-P115	9.8W 2.3W	820mA 190mA
Subtotal		12.1W	1010mA
Camera Adapter	KA-27	.5W	40mA
Total		12.6W	1.05A

3.1.2 BATTERY CARE

1 Depending on the battery type, procedures to preserve the battery life are important.

With NiCad batteries such as NB-G1 and NP-1B the battery should be discharged down to the level that shuts off the camera before recharging.

Otherwise a memory condition will eventually limit the low end of the discharge level and reduce the battery operating time.

Check instructions for other types of batteries.

2 Before recording, recharge the battery pack. Several battery packs should be kept charged according to the length of time shooting in the field.

For NB-G1 batteries the AA-G10 sequential charger can handle the successive charging of 4 batteries. The AA-P250 can charge 1 battery at a time.

The AA-G10 also has a 4Amp power capacity for supplying 12V DC to the camera.

3 The Battery level can be monitored using the STATUS 1 DISPLAY. Press the DISPLAY button up in the DISP. SELECT position once.

The camera is set to turn off at 10.5 volts.

Check your VTR manual for minimum VTR levels.

4 Low Battery levels are indicated by flashing overlay warning message and red "BATT" light for camera voltage.

A flashing Green "ALARM" Light indicates Low VTR voltage.

5 Do not leave the battery pack in a place subject to high temperatures. This could damage the battery beyond repair.

6 Keep batteries warm (around 72 degrees F) when shooting under cold conditions. Battery use is restricted when cold.

3.1.3 THE STANDARD BATTERY HOLDER FOR NB-G1 AND FLAT SHAPE TYPE BATTERIES.

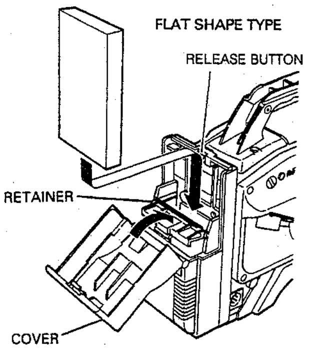
1 Press the release button to open the cover.

2 For NB-G1 use swing out the battery retainer.
For Flat shape type use the retainer should be shut.

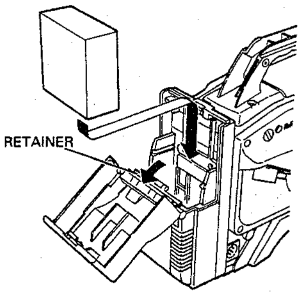
3 Install the battery pack with the terminals facing the camera.

4 With NB-G1 batteries close the battery retainer, and then close the cover.

For Flat shape type batteries close the cover.



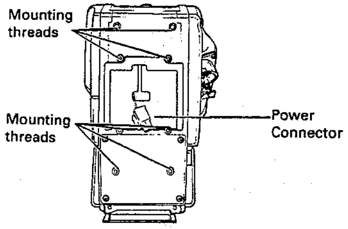
NB-G1



3.1.4 OTHER BATTERY HOLDERS

Battery Holders from other manufacturers can be mounted for internal battery use using provided mounting threads and power connector.

Remove the standard Battery Holder first.



3.1

3.1.5 AC POWER ADAPTER AA-P250 AND CABLE

1 Connect the AA-P250 power to the KA-27 camera adapter or the VTR using the 4pin power cable supplied with the AC power adapter.

2 Set the Charge/Camera switch on the AA-P250 to Camera.

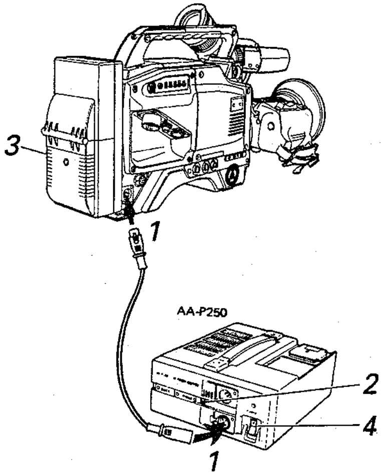
3 Set the Master Power Switch on the KA-27 or VTR to "DC INPUT".

4 Turn the AA-P250 power switch to ON.

It is normally advisable for AC power to use the AA-P250 Power supply.The AA-P250 Power and 3Amp current capacity is correct for possible loads, even when configured for docking.

The AA-G10 power supply and charger has a 4Amp current capacity and is advisible for MII power demands.

IT IS ADVISABLE NOT TO USE POWER UNITS OTHER THAN SPECIFIED; OTHER WISE THE RECORDER MAY STOP DUE TO A TEMPORARY DROP IN SUPPLIED POWER .



3.1.6 POWER FROM A PORTABLE VTR

Power from certain portable VTRs can be supplied through the multipin cable of the KA-27 adapter. The Master Power Switch of the KA-27 must be set to VTR/RM.

Please note that some Component or Digital portable VTRs can have power consumptions in the range of 42W to 65W when planning battery and AC power supply needs.

Set the master power switch to DC to power the camera independently.

3.1.7 POWER FROM OPTIONAL REMOTE CONTROL UNIT

The RM-P200 and RM-P300 Camera Control Units supply power through the multipin cable. The Master Power Switch of the KA-27 must beset to VTR/RM.

Set the master power switch to DC to power the camera independently.

EVERY DAY BEFORE SHOOTING (BASIC OPERATION) 3.2

This section discusses all camera head related set up functions.

For use with a VTR see Section 5.1 or 5.2 after setting up the camera with this section.

3.2.1 INITIAL SET-UP PREPARATIONS

1 POWER ON

1. First place a charged battery in the battery holder or connect DC power to the DC input.
2. Turn the AC power adapter on.
3. Switch the Master Power Switch to DC.

2 SAVE/ON

Turn the OPERATE switch to the SAVE/ON middle position.

3 AUTO IRIS ON

Initially set the Lens iris control to Automatic.

Later take advantage of the Monentary Iris control to activate the cameras exposure system when needed.

4 FILTER SELECT

Choose the proper filter Selection for the lighting conditions

5 LEFT SIDE SWITCH POSITIONS

A. Iris Compensation switch, set to normal.
B. Shutter switch set to off position
C. Gain switch set to 0dB. The single dot position is always OdB. (detail dots)
D. MODE switch set to CAM
E. W-BAL switch set to 1 or 2.

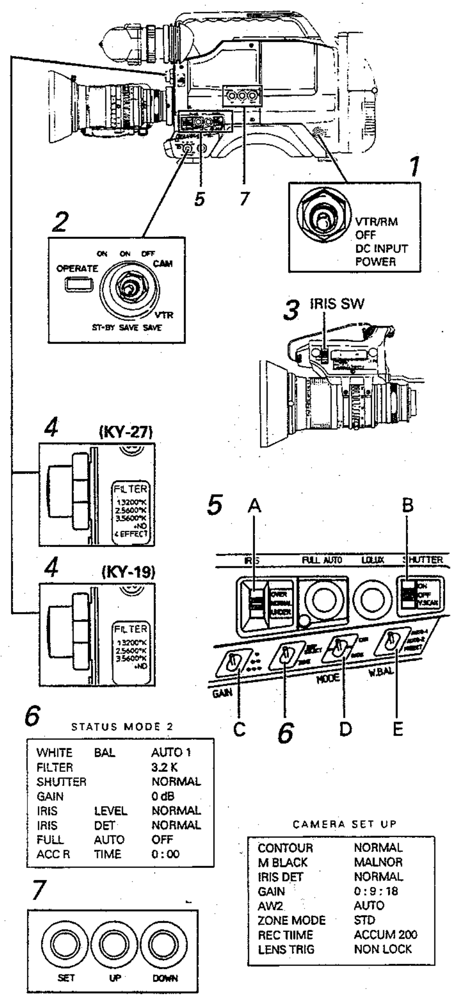
6 CAMERA STATUS

Check by pressing the DISP. SELECT switch up twice. This screen should be visible, with the settings as indicated. Press again to eliminate the display.

7 CAMERA SET-UP

Check by pressing the SET switch twice.

This screen should be visible with the settings as indicated. The display will automatically disappear after 5 seconds.



STATUS MODE 2

WHITE	BAL	AUTO 1
FILTER		3.2 K
SHUTTER		NORMAL
GAIN		0 dB
IRIS	LEVEL	NORMAL
IRIS	DET	NORMAL
FULL	AUTO	OFF
ACC R	TIME	0 : 00

CAMERA SET UP

CONTOUR	NORMAL
M BLACK	MALNOR
IRIS DET	NORMAL
GAIN	0 : 9 : 18
AW2	AUTO
ZONE MODE	STD
REC TIIME	ACCUM 200
LENS TRIG	NON LOCK

8 RIGHT SIDE SWITCH POSITIONS

A. Return Video switch set to Off.
WARNING:
IF RETURN SWITCH IS ON, STATUS DISPLAYS ARE NOT VISIBLE WHILE VTR IS IN RECORD OR RECORD/PAUSE.
Activating Set-up and Function changes override Return Video. The viewfinder will switch back to camera video.

B. Camera microphone audio channel designation.
1. Set switch to STEREO for different audio to be recorded on Channel 1 and 2 with a docked VTR. A Mono microphone records on channel 1 (Left) only.
2. Set switch to MONO for identical audio to be recorded on Channel 1 and 2 with a docked VTR.
3. Portable VTRs only receive the left channel of a Stereo-camera microphone, so the MONO position is advisable.

9 KA-27 SWITCH SETTINGS

A. This chart shows the **KA-27 Adapter settings** for various portable VTRs.
RGB signals are not output in VTR mode.

* AG-7400 will record B/W without setting switch 44 to Y/C.

** Set the cameras OPERATE switch to ON/ST-BY to start recordidng. If Set to ON/SAVE or OFF/SAVE the VTR will not start recording, unlike other 3/4" VTRs.

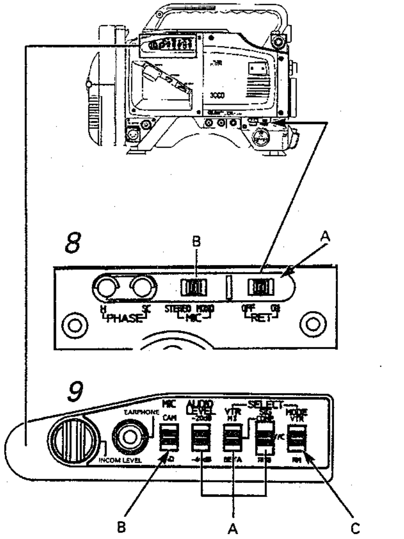
B. Set the **CAM/AD switch.**

CAM: If the camera microphone input is used.
AD: If the KA-27 Adapter microphone input is used.

C. Set the **VTR/RM switch**

VTR: For VTR
RM: For remote control unit.

NOTE: When S-VHS portable VTR is connected, it is recommended to use −20dB audio output on camera and H input level (−20dB) on VTR.



TYPE	1	2	3	4
VTR TYPE	PRO-SVHS Hi8 3/4" VHS BR-S422 BR-S411 BR-S405 AG-7400* EVV-9000 VO-8800 BVU-150 CR-4900L** AG-6400	MII KR-M460	BETACAM® BVW-35 BVW-50	VHS BR-6200 BR-1600
SWITCH				
AUDIO OUTPUT LEVEL -20/-60dB	MATCH VTR	MATCH VTR	MATCH VTR	-20dB ONLY
SELECT VTR COMPONENT	—	MII	BETA	—
SELECT SIGNAL	Y/C	COMPONENT	COMPONENT	—
TRIGGER	—	—	—	Internal Switch

3.2.2 VIEWFINDER ADJUSTMENT

Adjust the viewfinder to the operator's eyesight and shoulder position for the best comfort.

Next adjust the brightness and contrast for the viewing conditions.

(See section 2.4.4)

3.2.3 BACK FOCUS ADJUSTMENT

It is only necessary to perform this when focusing is not correct in both the Telephoto and Wide-angle positions, such as when the lens is attached for the first time.

Adjust the viewfinder for sharpness first.

It is easier to adjust back focus when the subject is more than 3 meters from the subject.

1 Set the Iris mode to M (Manual)

2 Set the Zoom mode to M (Manual)

3 Open the Iris ring to F1.4. If the illumination is to strong, reduce it or move to a darker place.

4 Turn the zoom lever until the lens it completely telephoto.

5 Focus on the subject. There is a specific chart that looks like a dart board which is helpful.

6 Set the lens to completely Wide-Angle.

7 Loosen the back focus ring retaining knob.

8 Adjust the back focus ring for the best possible focus.

9 Repeat steps 4 through 8 for fine adjustment.

10 Tighten the back focus ring retaining knob to secure the ring.

3.2.4 LENS OPERATION

1 FOCUSING

The lens is designed to have the best focus if you focus first in the Telephoto position and then frame your shot with the necessary Wider Zoom angle.

If the shot does not remain in focus see the previous section on Back Focus adjustment.

The lens is the sharpest in the middle Iris positions.

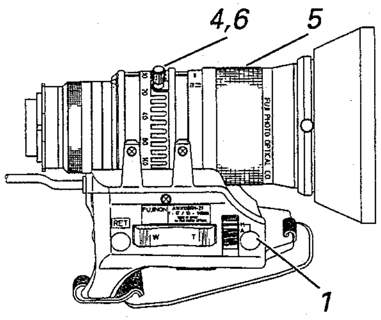
2 ZOOMING

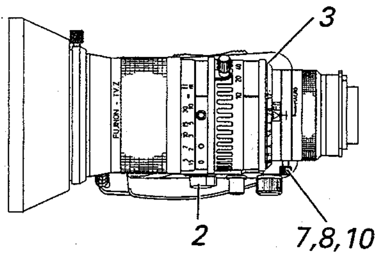
Similar to focusing, if you adjust the camera position with the lens in Telephoto the subject will remain centered while changing zoom angles.

The Servo Zoom has different speeds. The more you push on the lever the faster the Zoom speed. A very slow rate is possible with a light touch.

Wide angle shots appear more stable when moving. Following a moving subject can also help with the appearance of stability.

Telephoto shots usually need a tripod for stability.





3.2.5 AUTO WHITE/ BLACK BALANCE

Adjust White Balance:

- When the type of light source changes before or during shooting.

Adjust Black Balance:

- When the unit is used for the first time each day.
- After a long period of storage.
- When ambient temperature has changed dramatically.

The last Black and White balance settings are kept in memory even if the camera is turned off.

1 Set the Iris to Automatic (A) or Manual, depending on the subject.

(The Iris will be closed automatically during Black Balance).

2 Fill the screen with a white object placed in the same position as the subject, and lit by the same primary lighting as the subject.

3 If the FILTER turret has not been set for the current lighting color temperature, do so now. See section 4.2.

4 For AUTO SETUP (both Black and White Balance) press the Auto switch in the down position momentarily.

If White balance is in Preset, Full Time Auto White (FAW) or Full Auto Shooting is selected, Black balance only will be performed.

Black Balance operation will be repeated after White Balance has been performed.

5 For White Balance only, push the switch in the up position momentarily.

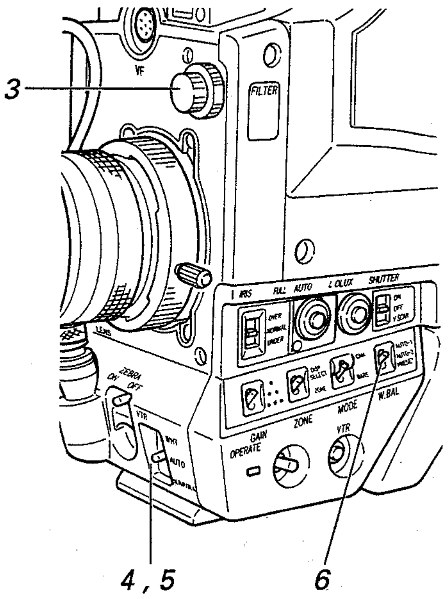
During the process Auto Set Up, Black Balance or White balance "Operation" and "Completed" will show in the viewfinder.

6 FULL TIME AUTO WHITE

FAW can be assigned to the Auto White Memory 2 switch **12** position in the Camera Set-Up mode.

The color temperatures in the video image will be continuously analyzed and the proper white balance provided.

See section 4.2 and 4.10 for details.



Function Failures:
WHITE BALANCE/BLACK BALANCE function

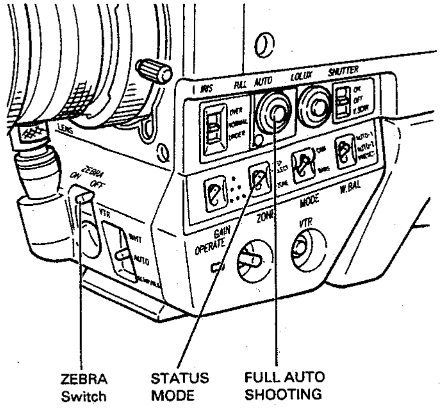
AUTO WHITE 1, 2 OBJECT ERROR	Check whether the object being shot is white enough. Check the filter
AUTO WHITE 1, 2 OVER LIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected.
ERROR	Circuit trouble exists. Check with JVC service center.

3.2.6 ZEBRA PATTERN (VIDEO LEVELS)

Pressing this switch **20** turns on or off the Zebra stripe pattern in areas of highlights between 80 to 90 percent brightness on viewfinder screen.

If you cannot achieve a Zebra pattern by changing the Iris manually or Automatically in areas brighter than a subjects face, or in highlights in general, you should consider adjusting for greater gain.

If dark areas contain zebra patterns you should consider adjusting for a higher shutter speed or using the Neutral Density filter.



3.2.7 CHECK AUDIO

Make sure that audio is reaching the tape machine.

Listen through an earphone connected to the jack on the KA-27 adapter or the VTR. Check for the quality of the signal, the level, and the connections.

With Docked VTRs the audio levels can be monitored in the viewfinder in the Status mode 1.

The Audio level display is available only from some dockable VTRs.

VTRs without return audio or portable VTRs will not give an audio level display.

The viewfinder 0 dB level must be set to match the VTR meter 0 dB audio level.

Readings in dB:

-18 -12 -6 -3 0 +3 +6

3.2.8 FULL AUTO SHOOTING OPERATION

The Full Auto Shooting function allows the camera operator to go ahead and shoot immediately with no manual camera adjustment.

To record with this mode just activate the Full Auto Shooting switch **6**, Zoom, Focus and Push the Trigger.

The camera is now ready to enter this mode with good results.

The Full Auto Shooting uses Enhanced ALC; Variable Shutter Speed (EEI) with Variable Gain (ALC). The Auto Iris is automatically activated even with the switch in manual to achieve good exposures over a wide range of lightning.

The Full Time Auto White function will keep White Balance correct under most conditions.

3.2.9 MOUNT CAMERA ON TRIPOD

The KA-510 TRIPOD BASE included with the camera must be used to secure the camera to a tripod or camera stand.

1 TRIPOD MOUNTING HOLES

Match A 3/8 or 1/4 inch Tripod Mounting Screw to the best hole for good balance.

2 TRIPOD MOUNT RELEASE

Pull back once to activate the front clip before mounting the camera.

Hold the camera, push the safety lever and pull this release lever to open the Base and release the camera.

3 SAFETY LEVER

Prevents accidental release. If the camera is secured in the Base, this release lever must be pushed in order to pull the release lever and open the Base.

4 REAR MOUNTING PIN

Make sure the rear mounting clip of the camera is firmly on the Tripod Base, so that the Rear Mounting pin can be engated properly.

Slide the camera forward and down until the front mounting clip of the Base engages the front Mounting Wedge on the camera automatically with a click.

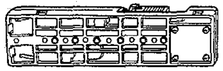
5 FRONT MOUNTING CLIP

Making sure the Rear Mounting Pin engages, Slide the front Mounting Wedge on the camera into the front Mounting Clip of the Base until it engages automatically with a click.

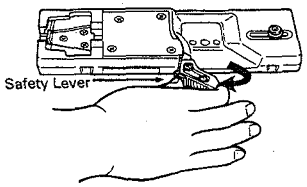
DO NOT REMOVE YOUR HAND FROM THE CAMERA UNTIL YOU ARE SURE IT IS SECURE.

NOTE: Double check that the rear pin is engaged properly.

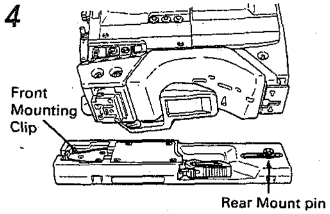
1



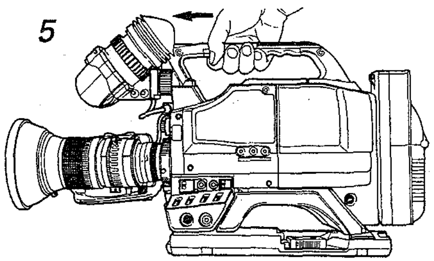
2,3



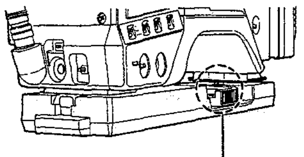
4



5



NOTE



Rear Pin not engaged !

3.2.10 STARTING THE VTR

It is now time to start the VTR. See sections 5.1 and 5.2 for Docked and Portable VTR use.

TROUBLESHOOTING 3.3

1) WHITE BALANCE/SET UP/BLACK BALANCE PROBLEMS

VIEWFINDER DISPLAYED ERRORS

AUTO WHITE 1, 2 OBJECT ERROR	● Check whether the white balance object being shot is white enough. ● Check that the Filter Turret is correctly set for the lighting conditions.
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO WHITE 1, 2 OVER LIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected
ERROR	Circuit trouble exists. Check with JVC service center.

OTHER PROBLEMS:

COLORS ARE NOT CORRECT IN FULL TIME AUTO WHITE

- Check the overall color balance. **If one solid color predominates this can cause an error.**
- White balance may shift perceptably when the gain is increased or decreased. Try to white balance in the mode that you expect to shoot.

2) VTR ERRORS

VIEWFINDER DISPLAY: VTR OP MISS?
VTR OPERATION MISSED.

- The Docked JVC SVHS VTR has not been placed in Record/Pause mode. Press the Record and Play buttons to activate Record/Pause.
- The Camera/VTR switch 2 is in ON/SAVE. The Save function stops head rotation and turns off the power to the circuitry in JVC Professional SVHS decks.
- Check the Operate switch on SVHS Dockable VTRs. This activates the SAVE function.
- A regular VHS cassette has been inserted in the SVHS mode. Change the mode on the VTR.
- The Stop button on the VTR may have been pressed instead of the Camera VTR Trigger.
- Check for missconnection.

OTHER VTR PROBLEMS:

NO RECORDING

- NO RECORDING may be due to a cassette with a safety tab removed.
- Do not trigger the VTR from the ON/SAVE mode. The professional SVHS VTR will display the "VTR OP miss?" error display. It is better NOT to trigger other VTRs from the ON/SAVE mode because the record light and other status messages may display wrong information. A Hi8 VTR, for example, does not have a save mode.
- After setting the VTR to save using the camera operate switch. Do not manually use the VTR operate switch to put the VTR back stand-by mode.
  It is possible that the VTR will not go into "REC" mode, even though the trigger is pushed and display "REC" on the viewfinder.
- If the VTR does not start Check the lens trigger setting in camera set up.

POWER PROBLEMS

- Low capacity power unit can cause some VTRs to shut off. Use specified power unit.
- Ejecting a tape may not occur until after a limited period of time from turning the power on.
- If you switch the power off within one second after the cassette holder is opened, it may not be closed fully.
- The cassette cannot be ejected if the power supply is too low.

BAD PICTURE FROM VTR

- Still pictures or pictures in search may vibrate vertically, have noise or become monochrome.
  This is normal
- Under severe vibration the VTR may not record or play back.
- When recording in the VHS mode on a SVHS tape previously recorded in the SVHS mode, Searching or editing the S-VHS recordings is not possible.
- No audio is available in search mode

ACCUMULATED RECORD TIME

Is approximate only. There may be a slight ifference because of the time for the VTR to enter record mode.

3) VIEWFINDER SCREEN DIM OR DARK

- Check the viewfinder contrast and brightness controls.
- Check if the filter turret is set to 5600 +ND.
- Check if the Iris is shut.
- Check if the Shutter speed is set too high.
- Check the viewfinder cable

4) FOCUSING IS NOT THE SAME IN TELE OR WIDE

- First check that the lens is solidly seated
- Then perform backfocus adjustment

5) GENLOCK IS NOT POSSIBLE WITH A VTR PLAYBACK

This is not possible unless a Time Base corrector is used.

6) HIGHER LEVELS OF GAIN WILL GIVE GREATER NOISE IN THE PICTURE

FAS, and ALC can increase the noise as the gain is increased.

7) PICTURE IS FLICKERING

Some lighting conditions may cause a flicker.
50 hertz power will cause a flicker for NTSC.

- For NTSC try adjusting to 1/100 shutter speed.
- Try Variable Scan to reduce flicker.

8) AUDIO CHANNELS NOT WORKING

Audio can only be recorded from the camera mic in stereo on a stereo Docked deck.

In the stereo position a mono microphone will record on the left channel only.

9) AUTO IRIS IS NOT STABLE

- The lens iris adjust speed may be set to high or low.
  The lens supplied from the JVC factory is set correctly for the iris servo system. The adjustment is behind the small port marked "IRIS GAIN" on the front of the servo/lens grip, and should be performed by an authorized JVC service representative.
- Similarly, the Dynamic Shading function is adjusted to compensate for the lens supplied with KY-27.
  An authorized JVC service representative can reset this function.
- If Enhanced ALC is used in the Manual Iris mode for Aperture Priority, the response time of the Automatic level control may not be as fast as when the Enhanced ALC is used in with the Automatic Iris.
- The range of the Manual Aperture Priority is the equivalent of 5 F-stops, while the automatic Iris Enhanced ALC mode has a range the equivalent of 11 F-stops. This should be considered when shooting in a high contrast environment.

10) CCU TROUBLESHOOTING

Video Problems

Poor color reproduction:
Is the SC Phase control adjusted correctly?

The Monitor Does not synchronize:
Is the mode switch on the KA-27 Camera adapter set to RM?
Is a reference video signal being sent to the Genlock input connector?
Is a VTR signal being used for a reference?
Is the reference signal a proper composite video or black burst signal? Computer signals will not genlock.

Control problems

Tally Light is not working:
Is power supplied to the tally input terminal?
Is the internal trigger type switch in the correct position?

Intercom communication is not working:
Is the impedance of the headset appropriate?
(headphone 200–600 Ohms)
Is the KA-27 mode switch set to RM?

The auto set-up indicator does not light:
Is the color temperature filter correct?
Is the subject being shot the a solid color?
Are all the cables connected correctly?

11) FUNCTION PRIORITIES

LOLUX ON

LOLUX function has priority over Gain, but Full Auto Shooting will lose only the Variable shutter and Variable Gain functions. Settings will default to the last value and switch position of the shutter switch, including Variable Scan.

FULL AUTO SHOOTING
Full Auto Shooting has priority over Gain, Shutter, Variable Scan, White Balance.

SHUTTER ALC
Automatic Level Control has priority over Shutter, and Variable scan.

IRIS OVER/UNDER
Is Totally independent of LOLUX or FULL AUTO SHOOTING.

FULL TIME AUTO WHITE
Full Time Auto White has priority over White Balance.
Full Auto Shoot also engages Full Time Auto White and has priority.

WHITE BAL PRESET
Preset mode has priority over White Balance.

WHITE BALANCE / AUTO SET UP
Has priority over STATUS displays, and RETURN video.

ST-BY
Standby is displayed in STATUS MODE 1 position whether or not a VTR is connected, or in the RECORD / PAUSE mode.
This reflects the OPERATE switch position only.
Pressing the VTR Trigger under these conditions will cause the display to show "VTR OP MISS?"

ACCUMULATED AND REMAINING RECORD TIME
are not displayed in play back mode.

WARNING PRIORITY:

When two malfunctions occur at the same time this order determines the display.

VTR OP MISS?	Message only This will always be visible in addition to other warnings (Only docked S-VHS VTRs)
Priority 1. VTR WARNING	Green light blinks Some VTRs do not return signals to camera
Priority 2. TAPE NEAR END	Green light blinks Only docking Betacam,MII
Priority 3. LOW BATTERY	Red or Green light blinks

12) SYSTEM RESET

SEE SECTION 4.10.10 PAGE 59 TO RESET ALL CAMERA SETUP AND FUNCTION CONDITIONS TO THE DEFAULT SETTINGS.

ADVANCED OPERATION 4

SELECTING FUNCTIONS FOR DIFFERENT SHOOTING CONDITIONS 4.1

This simple chart lays out conditions and functions to use for them.

	CONDITION	FUNCTION
1	A sudden event, no time to set up.	Full Auto Shooting
2	Changing light color balance.	White Balance, Filters
3	Moving between predictable complex lighting environments.	White Balance Memories
4	Light color balance will change unexpectedly while moving, or over time.	Full Time Auto White
5	A bright daylight environment, Lens is always at F16 or high shutter speeds are being used by Enhanced ALC. Less depth of field is preferred.	Use $\boxed{3}$ filter 5600K + ND. This will lower the F-stop range by four F-stops.
6	The subject matter has bright lights or shiny surfaces in the background. The subject is under exposed.	Average Iris Detect mode Iris Override, Over mode
7	The subject matter is brightly or evenly lit, with important detail in the highlights.	Peak Iris Detect mode Iris Override, Under mode
8	The subject is moving between differing contrast environments. There will be no time to adjust camera.	Auto Peak/Average Balance Iris Detect mode
9	A bright light close to the subject.	Iris Override, Under mode
10	The subject is surrounded by darkness.	Iris Override, Over mode
11	A bright light in the edge of the scene.	No special setting, Multizone Iris Weighting will compensate.
12	Night or Emergency shooting conditions.	LOLUX
13	A fixed depth of field is needed.	Aperture priority
14	Fluorescent lights flicker.	1/100 shutter speed (U version) 1/120 shutter speed (E version)
15	High speed objects that need to be played back in slow motion and seen sharply.	Shutter priority
16	Computer monitor has flicker bars or data flickers.	Variable Scan
17	High speed objects are flickering, or need to be isolated or frozen in motion.	Special High Shutter Speeds (Variable Scan Mode)
18	The camera will be sending RGB output.	RM-P200 or RM-P300 CCU is needed
19	The subject has very low or high contrast. The Camera must match a different video source.	Adjust the Master Black level (Check image on monitor first)
20	The Subject has too little or too much detail, low or high contrast.	Adjust Contour (detail) (Check image on monitor first)

4.2 WHITE BALANCE ADJUSTMENT

4.2.1 SUMMARY DISCUSSION AND COLOR TEMPERATURE

White balance is necessary because there are many different colors and combinations of colors to be encountered in lighting.

Video white balance is very precise, and can correct for some difficult conditions such as fluorescent lighting or underwater shooting that are very hard to adjust for by filters alone.

It is very important to pay attention to the basic source of the light.

A good example of a tough situation is theater lighting, where many combinations of colored lights are used, and incandescent lights are the basic source.

The incandescent lights change color when they are bright or dim, and spot lights often are a completely different color temperature than the basic lighting.

This is often the case in the real world as well, where outdoor light from a window is often mixed with Incandescent and Fluorescent, all of which have extremely different fundamental color make-ups.

The best strategy is to make one color or type of light dominant. This simplifies the task of mixing colors and often if the subject is correctly colored the background color distortion is not as objectionable.

This can be done as simply as paying attention to positioning the subject so that one lighting source is strongest.

It is very important to keep track of the strategies used in order to maintain continuity in a scene. It is often very difficult to compensate later for an error in technique or lack of control.

4.2.2 WHITE BALANCE FEATURES

There are some basic tools this camera has to take care of white balance:

1 Automatic White Balance

If it is possible the white balance should be adjusted frequently with the same target placed as close as possible to the subject.

2 Automatic White Balance Memories

The two White Balance Memories can be used to pre establish a good white balance and then rapidly switch between them while shooting.

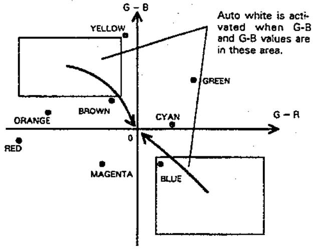
3 Full time Automatic White Balance

This function detects large changes in the Red and Blue fundamental colors in the image and then compensates to give the appropriate white balance, with proper skin colors as a control.

The color signal is divided up by the camera into three signals; Green for Intensity, Green minus Blue, and Green minus Red. This is one form of component color system.

There is a general principle that differing color temperatures change nearly along an axis running between the Yellow/Orange region and the Blue region.

The G-B and G-R values are then kept close to the 0 value, away from areas that are too Blue or too Yellow/Orange.



This mode is very good when there is no time to take new white balance settings and the camera is constantly moving in and out of different lighting environments.

However if a field of view tends toward a single color this technique can be misled, such as when an off-white room is encountered. There are many different colors for off-white.

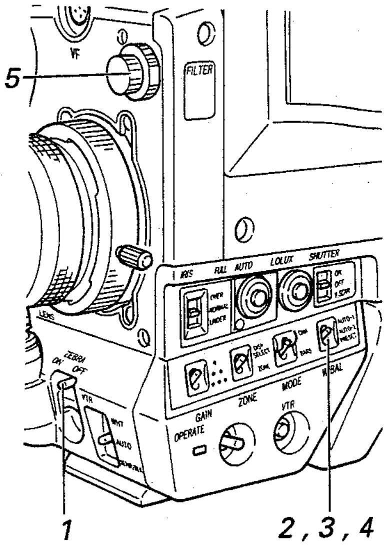
It is best to test this use before hand.

4 Preset White Balance

The factory preset white balance is 3200 degrees Kelvin. This is the temperature of normal incandescent lighting. It is also the color temperature of outdoor light just before sunset. It is close enough to most indoor lighting colors that if other methods are not possible it can get a descent result.

5 Internal Filter Choice

Filter No.	Function
1	The #1 position is a clear filter that gives the most sensitivity to low lit situations with incandescent lighting.
2	In the #2 position the factory preset neutral condition is then modified by an "orange" appearing filter that compensates for the "blue" outdoor light. This is the 5600 kelvin setting for the filter turret. If there is trouble getting a good balance outdoors, using the Preset 3200 k setting with a 5600 K degree filter can provide a dependable white balance. However lighting outdoors changes hour by hour so care should be taken with this practice.
3	The #3 position is admits 1/16th of the light to the CCD. This is very useful for extremely bright conditions such as on beaches or in snow. This filter is set at 5600 K primarily for use with outdoor scenes. The depth of field of outdoor scenes is reduced as well.
4 (KY-27 only)	The #4 position is a 4 way Cross Filter that gives a cross shine to highlights. Experiment with this to give added feeling to a scene. This filter is set for 3200 K. If the White Balance or Full Auto White function is not accurate enough in the day light you should use an "outdoor light" external filter mounted on the lens filter to help the white balance adjust for 5600 K color temperatures.



N0.	Color temperature	Shooting condition
1	3200 K	Studio/Nightime
2	5600K	Cloudy weather / Outdoors in rain / Indoor with fluorescent lamp
3	5600K+1/16ND	Outdoors in daytime
4	EFFECT (KY-27 only)	Cross

6 External Lens Filter use

When possible it can be very rewarding to experiment with filters mounted on the front of the lens. There are many photographic filters designed for very specific lighting conditions and special effects.

A UV FILTER tends to reduce haziness from water suspended in the air. It also protects the lens with no visible picture distortion.

A SKY LIGHT FILTER tends to warm up faces and keep backgrounds from becoming too blue. This also protects the lens with no visible picture distortion.

A POLARIZER FILTER can dramatically reduce reflected light and highlights from reflections. The contrast of the sky can be increased, and shine on tree leaves can be reduced. Water and glass can be made transparent. (However this filters effect depends on the rotation of the lens and the angle with the sun)

NEUTRAL DENSITY FILTERS can help to preserve depth of field by reducing the amount of light. The ND filter of this camera is tied to the 5600 K outdoor color temperature.

#85 OUTDOOR FILTER This filter is designed to adjust the outdoor color temperature to match devices and film designed for 3200 K incandescent lighting.

4.2.3 BASIC OPERATION:

Adjust White Balance:
When the type of light source changes before or during shooting.

Adjust Black Balance:
When the unit is used for the first time each day.
After a long period of storage.
When ambient temperature has changed dramatically.

The last Black and White balance settings are kept in memory even if the camera is turned off.

White balance will not occur during these modes:

- Full Auto Shooting
- Full Time Auto White
- White Balance Preset

STEPS:

1 Set the Iris to Automatic (A) or Manual, depending on the subject.
(The Iris will be closed automatically during Black Balance).

2 Fill the screen with a white or grey object placed in the same position as the subject, and lit by the same primary lighting as the subject.

For example in very mixed lighting the target should be perpendicular to the lens.

When there is a very strong point source of light angle the target toward that light source.

When there is a very broad source of light, angle the target toward the surroundings, as the reflected light contributes to the subject lighting also.

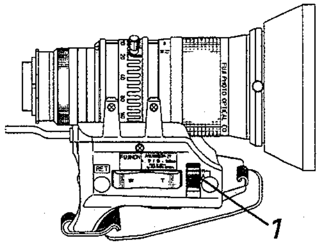
3 If the FILTER turret has not been set for the current lighting color temperature, do so now.

At night there are many different artificial light sources. Experiment taking white balances under the 3200 and 5600 K settings and then switching the filter to see which gives the best impression.

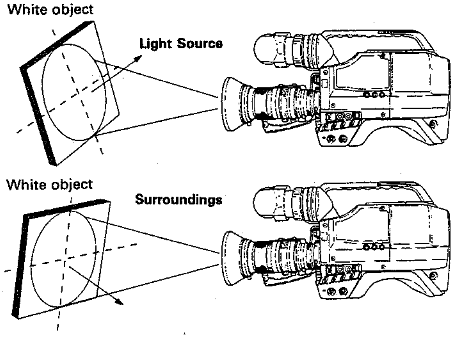
But if the subject is a person try to white balance in a traditional fashion unless an effect is desired.

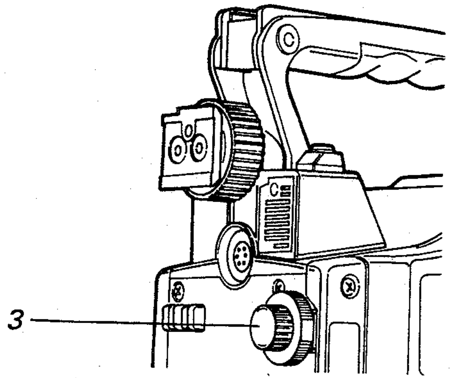
By white balancing in the 5600 K mode and shooting in 3200 K you can give a scene a warm feeling.

By white balancing in the 3200 K mode and shooting in 5600 K you can give the scene a colder bluer feeling.



2





4 For AUTO SETUP (both Black and White Balance) press the Auto switch in the down position momentarily.

If White balance is in Preset, Full Time Auto White or Full Time Auto shooting is selected, Black balance only will be performed.

Black Balance operation will be repeated after White Balance has been performed.

5 For White Balance only, push the switch in the up position momentarily.

The White Balance will be stored in either AUTOMATIC WHITE BALANCE MEMORY 1 or 2 depending on the current setting of the W. BAL memory switch.

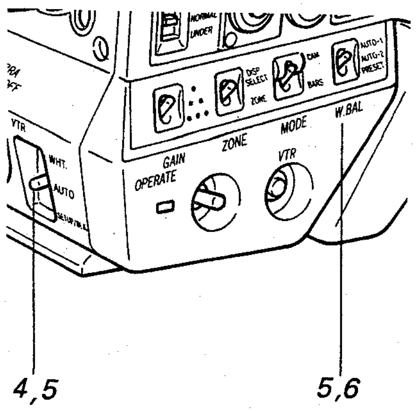
- During the process Auto Set Up, Black Balance or White balance "Operation" and "Completed" will show in the viewfinder.

6 FULL TIME AUTO WHITE can be assigned to the Auto White Memory 2 switch position in the Camera Set-Up mode. The color temperatures in the video image will be continuously analyzed and the proper white balance provided. See section 4.10 for camera set-up.

4.2.4 ERROR MESSAGES

These messages will indicate failure to perform white or black balance.

AUTO WHITE 1, 2 OBJECT ERROR	Check whether the object being shot is white enough. Check the filter
AUTO WHITE 1, 2 LOW LIGHT ERROR	Check to see if increasing gain or lighting will help.
AUTO WHITE 1, 2 OVER LIGHT ERROR	Check to see if the sun or other bright light is shining in the lens. Check that the filter is adjusted properly.
AUTO BLACK ERROR	Auto black has been interrupted.
AUTO BLACK LENS NOT CLOSED?	Check that Auto iris is on, or that the lens is not connected
ERROR	Circuit trouble exists. Check with authorized JVC service center.



AUTO WHITE
OBJECT ERROR

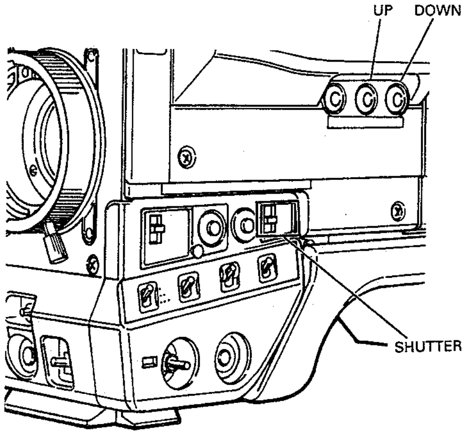
4.3 ELECTRONIC SHUTTER PRIORITY

The normal operation of this camera assumes a shutter priority mode, where the aperture and possibly gain are used to adjust for different lighting levels.

The basic shutter speed is 1/60 of a second for NTSC (U version), 1/50 of a second for PAL (E version).

This is the center or normal/off position of the SHUTTER switch.

Higher shutter speeds are obtained by shortening the period that the chip collects and saves signals from light within the normal 1/60th (U version), 1/50th (E version) of a second video field duration.



4.3.1 BASIC OPERATION

OFF:
This mode corresponds to the standard 1/60 NTSC setting.

SHUTTER:
This mode allows setting of different Shutter speeds.

To change shutter speed push the UP or DOWN SET Button after placing the SHUTTER switch in the up and ON position.

The range of shutter speeds cycles between:

→ 1/100 (U version), 1/250, 1/500, 1/1000, 1/2000
1/120 (E version)

To change the shutter speed again, press the UP or DOWN buttons again to activate the display, and a second time to change the speed.

4.3.2 WHEN TO USE

A shutter speed of 1/60th second (U version), 1/50th second (E version) is too slow to prevent blurring from normal actions when as subject is moving. This gives a smooth and natural effect when watching motion normally, but in certain applications the video is to be displayed in slow motion or as a freeze. The blurring in this case reduces the possible sharpness of the image.

As one increases the shutter speed the amount of light collected is less and less, so consideration should be given to the effects of opening the iris and increasing gain.

Opening the iris reduces depth of field and causes foreground and background objects to go out of focus. This is a useful artistic technique.

But increasing gain also increases video noise, so care should be given to the quality of the image needed.

VARIABLE-SCAN 4.4

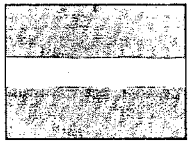
4.4.1 SUMMARY

This mode helps adjust the shutter speed to match the scan rate of a display or computer monitor.

The mismatch of scan rate to shutter speed causes a light horizontal over-exposure bar in the monitor if the computer refreshes the screen faster than the camera shutter speed.

If the scan rate of the computer screen is slower than the camera shutter speed there will be a dark under exposure bar in the monitor.

Moniter Screen



The monitor scan rate frequency can change for many reasons while running the computer, so try to watch a planned sequence in the viewfinder to make sure the rate is stable during the shot.

The scanning frequencies may change because of:

- Different Software
- Software changing mode during operation
- Different brand or model of computer or monitor running the same software
- Different brand or model of display card with the same type of computer or monitor

4.4.2 BASIC OPERATION

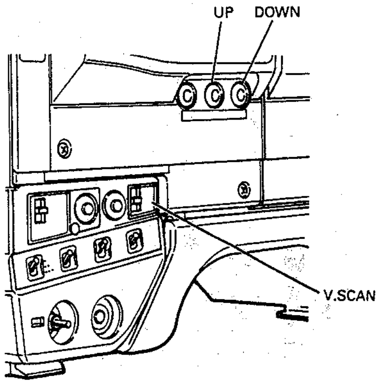
Place the SHUTTER switch down in the V.SCAN position and then use the UP or DOWN SET Buttons to adjust the speed.

In U version, there are 255 increments starting with 1/60.1 to 1/2084.6 for KY-19 and 1/60.1 to 1/2074.6 for KY-27C.

In E version, there are 305 increments starting with 1/50.1 to 1/2067.8 for KY-19 and 1/50.1 to 1/2061/8 for KY-27C.

The effect will be to shrink the dark or light horizontal flicker bar. When the bar is the thinnest is the best setting.

To change Variable-Scan speed again, press the UP or DOWN buttons again to activate the display, and a second time to change the speed.



4.4.3 RANGE OF FREQUENCIES COVERED

IBM "CGA" standard displays are near the lower limit for modern computer monitors at 15.75 kHz Horizontal scanning frequency and a 60 Hz Vertical Scanning frequency, similar to NTSC.

NTSC (U) versions of the camera will not be able to access computer monitor rates as low as some 50 Hz Vertical frequency monitors.

The best thing is to experiment under the guideline that a light flicker bar means the shutter speed is too low and a dark flicker bar means the shutter speed is too high.

Some computer monitors have longer Phosphor decay times. This tends to reduce the flicker effect, so test first.

Most computer monitors should fall within the first 100 steps.

4.4.4 THIS CHART IS FOR SOME POPULAR COMPUTERS

This chart, compiled in part from the Inline Corporation "Computer Video Handbook" is for some popular computer monitor and card combinations.

There are many, many more different frequencies and the best bet is to develop your own records of what setting works best.

4.4.5 SPECIAL APPLICATION HIGH SHUTTER SPEEDS

If you experience a bad flicker at high shutter speeds in lighting or other repetitive images try adjusting the Variable scan mode.

COMPANY	STANDARD	CAMERA	MONITOR	
		V. SCAN	Fhor. kHz	Fvert. Hz
Television	PAL			50
	SECAM			50
	NTSC		15.7	59.95
IBM	CGA	59.95	15.7	60(Shut.Nor.)
	MDA		18.1	60
	EGA	59.70	24.1	60
	PGA	60.06	30.5	60
	VGA mode 1		31.5	60
	mode 2		35.5	60
	mode 3	70.086	35.5	70
	XGA = VGA and			
	mode 4		50.0	80
APPLE	AppleII		15.7	60(Shut.Nor.)
	Mac		22.2	60
	MacSE		22.2	59.9
	MacIISI,IICI,LC			
	mode low		24.5	60
	mode hi	66.667	35.5	66.6
	MacII,IIX	66.667	35.5	66.6
	Quadra		35.5	60
COMMODORE	Amiga		15.7	60(Shut.Nor.)
VARIOUS WORK STATIONS				
SILICON GRAPHICS				
	4D/220		64	60
HEWLETT PACKARD				
	HP-340		64.5	60
IBM	6091		69	50
DEC	VRT19		70.7	66.5
SUN MICRO SYSTEMS				
	model 2		76	
NCD	16,16E		82.9 70	70

GAIN 4.5

4.5.1 SUMMARY

The gain function boosts the signal from the CCD sensors.

The pyramid of dots stands for the different sensitivity levels. Two dots and Three dots can be changed in the Camera Set-Up menu (see section 4.10)

One dot:	Always equals the 0dB gain up position
Two dots:	When Set up for either Enhanced ALC or +9dB,
Three dots:	Is Set UP for +18dB.
Two dots:	When Set up for +6dB
Three dots:	Can be Set Up for either Enhanced ALC, +9dB, and +12dB.

GAIN chart

<table>
<tr><td>•</td><td colspan="5">0dB*</td></tr>
<tr><td>••</td><td>ALC (0 - 18 dB)</td><td>9dB*</td><td colspan="3">6dB</td></tr>
<tr><td>•••</td><td colspan="2">18dB*</td><td>ALC (0-18dB)</td><td>9dB</td><td>12dB</td></tr>
</table>

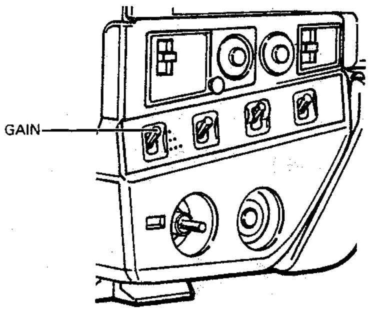
* Factory Setting

4.5.2 OPERATION

Simply switch between the different settings.

If it is not possible to get a Zebra video level reading in areas brighter than peoples faces it may be advisable to begin to use gain to adjust for the light conditions.

Higher levels of output gain result in a decrease in the signal to noise ratio and resulting in a noisier picture; so it is usually advisable to try to keep to 0dB gain up. For every dB of Gain up there is a corresponding reduction of the signal to noise ratio.



4.5.3 ALC

ALC mode is an Aperture Priority AUTOMATIC LEVEL CONTROL mode that can be programmed into the two dot or three dot position in the Gain switch $\boxed{9}$.

Gain in low light and the Shutter speed in high light conditions are continuously varied to achieve good video signal levels based on the Automatic or Manual Iris settings.

ALC in Auto Iris extends F2.0 sensitivity from 125 lux down to 16 lux between 0 dB and +18 dB gain.

The F16 operating range is extended from 8000lux up to 32,000lux.

This expansion is the equivalent of 3 Fstops of low light range and 2 stops of bright light range to give a total range similar to 11 Fstops.

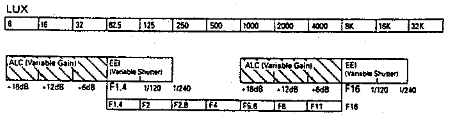
ALC is also engaged during FULL AUTO SHOOTING.

When the Iris is set to Manual the Gain and Shutter speed will vary continuously from the fixed Fstop setting.

This very useful function can be used to hold the depth of field constant even though lighting conditions are changing.

In Manual Iris at F1.4 the exposure range is extended from 62.5 lux at 0 dB down to 8 lux.

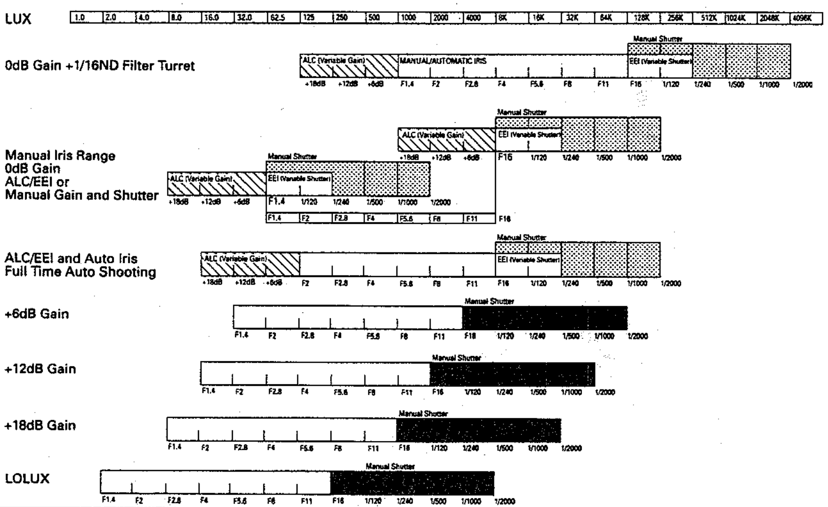
The speed of reaction in manual is gradual, so practice to learn the characteristics.



FIXED F STOP RANGES (KY-19)

4.5

4.5.4 GAIN, FSTOP AND SHUTTER SPEED RANGE (KY-19)



4.6 LOLUX

With this function a good dynamic range of brightness will be captured even under conditions where it is difficult to see with the human eye.

Because this is a 3 CCD chip camera the color rendition will also be true to life.

LOLUX enables shooting at approximately 1 lux or 0.1 footcandles (KY-27), 2 lux or 0.2 footcandles (KY-19) at F1.4. One footcandle is the equivalent of the amount of light cast by one candle at a distance of one foot.

It is similar to a +33 dB (KY-27C), +30 dB (KY-19) gain up position.

The basic underlying principle of LOLUX is to combine the light gathering capacity of the CCD chip.

The signal to noise ratio and the resolution are reduced, but it is possible to shoot subjects otherwise impossible.

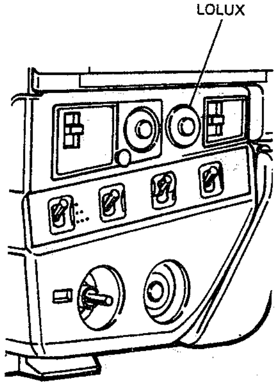
BASIC OPERATION:

Push the LOLUX button 7 momentarily to engage the function. Push again to release.

The regular GAIN settings will be inactive, but the Auto Iris and Shutter will operate normally.

ALC and LOLUX do not work together. When LOLUX is engaged the Shutter defaults to the previous settings.

In FULL AUTO SHOOTING MODE the only the Auto Iris and the Full time Auto White remain engaged.



IRIS 4.7

The Iris system is the primary function in adapting various light levels to good video signal levels. The actual physical Auto Iris changes the Lens Iris position based on the Exposure Detection mode.

Automatic functions such as Variable Shutter or Variable Gain stem from the Iris setting, whether the Iris is in automatic or manual mode.

Understanding the way the camera detects light in the scene will help the camera operator take the best advantage of the various functions.

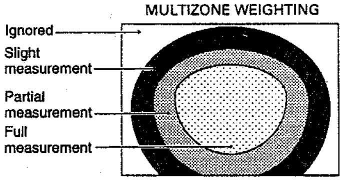
4.7.1 MULTIZONE DESIGN

The exposure detection system used for the Auto Iris is based on a multizone pattern that assigns a priority according to the probable important subject area.

Further from the center zone of these fields the importance of a bright object is less, and therefore will not disturb the automatic settings unnecessarily.

To visualize the multi zone in the viewfinder, hold the VTR trigger switch on the front while turning power on to the camera, with the OPERATE switch.

Turn off the camera to clear the display.



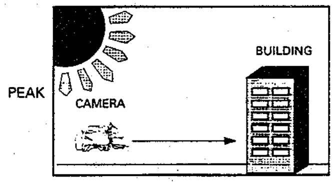
4.7.2 EXPOSURE DETECTION MODES

Since the dynamic range from dark to bright of possible lighting conditions exceeds that of any camera, the camera operator should make a judgement about the type of lighting on the subject of the scene.

There are four basic categories of lighting conditions that the KY-19/KY-27 can accommodate with these settings: Peak, Average, Automatic Peak/Average Balance (APB), and Normal.

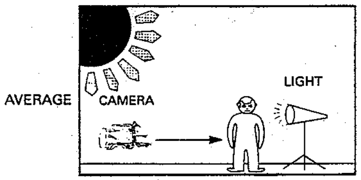
A. Peak

A fixed weighting ratio of 75% peak and 25% average. For use when it is important to capture detail in the highlights of the subject, and the subject dominates the whole scene.



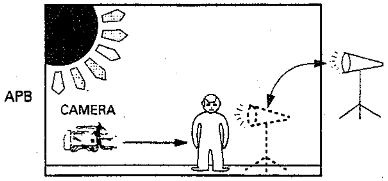
B. Average

A fixed weighting ratio of 25% peak and 75% average. For use when the subject material has bright highlights that are less important than the average exposure.



C. APB

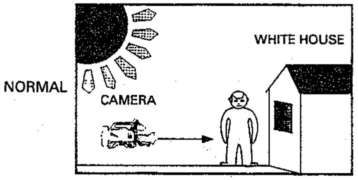
Automatic Peak and Average Mix Ratio. In this mode the camera varies the Peak to Average weighting ratio governing the iris based on typical shooting conditions, and the multizone priority system.



D. Normal

A fixed weighting ratio of 50% peak and 50% average. This setting is for shooting under conditions with varied lighting that is not changing.

For reflected light this is close to the brightness of a white person's skin.



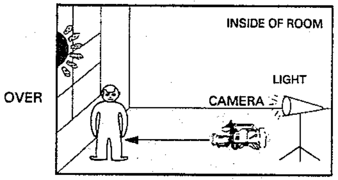
4.7.3 IRIS OVER/NORMAL/ UNDER

This switch 5 can be used to adjust the exposure system to Over or Under expose by about one half F stop.

Many conditions can cause the detection mode to expose high or low. Here are two examples.

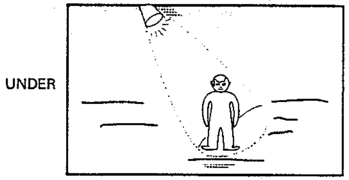
USE OVER:

A back lit scene such as a person in front of a window, or a bright light in the scene will tend to be under exposed for areas lit reflectively.



USE UNDER:

A front lit scene such as a person under a bright local light or a spot light on a stage will tend to be over exposed.



THIS FEATURE OPERATES TO WITHIN ONE STOP OF IRIS FULLY OPEN OR CLOSED.

4.7.4 IRIS OPERATION

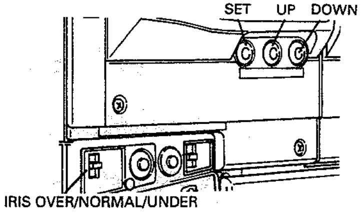
In normal operation the detection setting is not changed, but it can be modified using the Camera Set-Up menu set to IRIS DETECT.

DETECTION SET-UP:

Press the SET switch 13 twice to enter the Camera set up menu.

Continue to press the SET switch until the cursor reaches IRIS DET.

Use the UP and DOWN switches 14 to cycle between the four modes: Peak, Average, APB (Automatic Peak/ Average Balance), and Normal.



ENGAGING AUTO IRIS:

There are two methods to turn on the auto iris function.

A. AUTO IRIS SWITCH

Lens switch 6 on the lens servo sets the automatic iris continuously on or off.

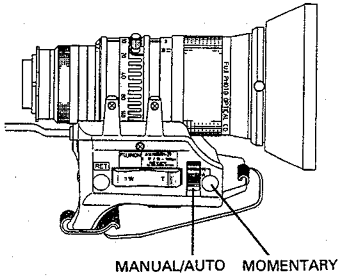
A: Auto iris On and Remote operation.
M: Manual iris operation.

B. MOMENTARY AUTO IRIS BUTTON

This button on the lens servo activates the Auto Iris Function while it is held down only. The Auto Iris Switch must be in the Manual Iris mode (M).

C. IRIS OVER/NORMAL/UNDER SWITCH

This Switch selects over-exposure by about one half F stop if pressed upward and under-exposure by the same if pressed downward.



FULL AUTO SHOOTING

The momentary Full Auto Shooting switch turns this function on and off, with an indicator light.

Next put the camera in ON/ST-BY and push the trigger button.

First the ALC combines the Auto Iris, Variable Gain and Variable Shutter Speed to control the exposure automatically.

The Gain will vary continuously to the maximum of +18 dB. The Shutter speed will vary continuously to the minimum of 1/240th of a second. The Iris will operate down to F2.0 and up to F16 before engaging the Gain or Shutter.

The AUTOMATIC AVERAGE/PEAK BALANCE function (APB) allows the KY-19/KY-27 to analyze if the scene is a Peak or Average situation and continuously vary its response according to changing conditions.

In addition the FULL TIME AUTO WHITE (FAW) function samples the spectrum of color temperatures in the image and determines the appropriate white balance, with proper skin colors as a control. See section 4.2 for further details about FAW.

Preconditions:

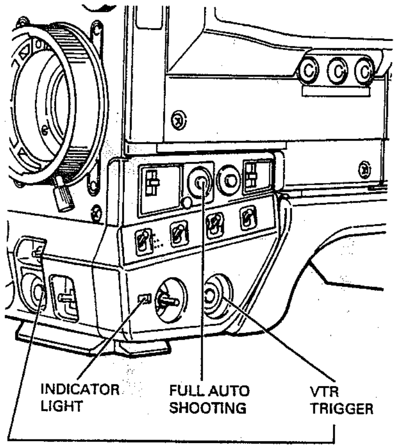
- The Filter turret should be set correctly for the current lighting conditions.
- The Camera Operate switch and the Trigger buttons Must be used to begin recording.

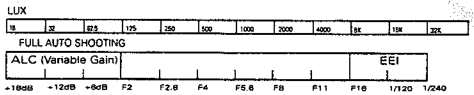
Priority:

- The Full Auto Shooting function has priority over many other functions:
- Gain, Shutter speed, Variable Scan, Manual Iris, White Balance, IRIS DETECT.
- The Auto Iris automatically turns on even if the lens switch is set to manual.

Independent functions:

- LOLUX will override the Variable Gain and the Variable Shutter functions of Full Auto Shooting. The Full Time Auto White and Automatic Iris functions remain.
- The Iris Over/Under switch is completely independent of Full Time Auto White.





FULL AUTO SHOOTING RANGE (KY-19)

4.9 ACCUMULATED RECORD TIME

Accumulated Record Time is the approximate total VTR record time in minutes and seconds. A common practice is to reset this to zero when a tape is inserted.

This indication is selectable for the center position of STATUS DISPLAY 1 mode, or for STATUS DISPLAY 2 mode. Remaining Record Time will swap positions with Accumulated Record Time between STATUS DISPLAY 1 and 2.

The time represents the period in Record mode between Trigger operation. The represented time is approximate because the VTR will give a delay before going in to record mode. The actual tape duration is not measured by this function.

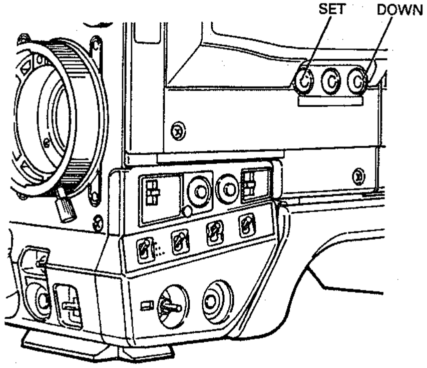
The use of fast forward, rewind search or play will not change the value.

When the current duration of recording is needed this timer can be reset to zero.

The ACCUMULATED RECORD TIME RESET/CAMERA SET-UP button has two functions, the first of which is Accumulated Record Time Reset to Zero.

- First Push the SET button once.
- Then Push the DOWN SET button once to set the current Accumulated Record time to zero. The Viewfinder will be cleared immediately.

This overlay mode is automatically cleared after 5 seconds if the time is not reset.



"VIEW FINDER"

ACC REC TIME RESET
12:00
PUSH "DOWN" BUTTON

CAMERA SET-UP 4.10

4.10.1 ADJUSTING CAMERA SET-UP

- Select by pushing the SET button twice.
- Continue to push the SET button to cycle through the Camera Set-Up Menu until a function is selected.
- Pushing the adjacent UP or DOWN SET buttons to select a new function condition.

This overlay mode is automatically cleared after 5 sec.

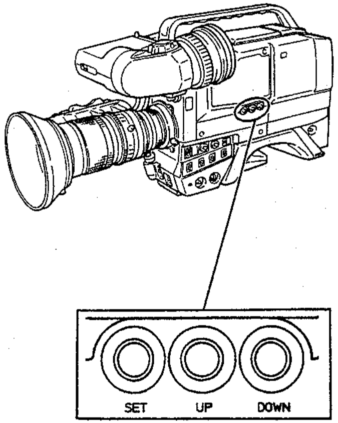
WARNING! This Mode will change a camera configuration setting if the UP or DOWN SET buttons are pressed.

CONTOUR	Is the amount of detail enhancement in steps from -10 to -1, NORMAL, 1 to 10 See this section for more details.
M BLACK	Is the pedestal level in steps from -10 to -1, NORMAL, 1 to 10 See this section for more details.
IRIS DETECT	Is the exposure detection mode. See section 4.7 for more details. AVG = Detected by average picture level. PEAK = Detected by peak picture level. NOR = Detected by mixed average and peak. APB = Automatic peak and average mix ratio.
GAIN	Always One dot: • = 0dB Two Dots and Three dots are selected as either: •• : ••• = 9:18, ALC:18, 6:ALC, 6:9, 6:12
AW2	The AW2 White Balance position can be assigned to: AUTO= Auto White Balance Memory 2 FAW = Full Time Auto White
ZONE MODE	The Safety zone aspect ratio can be set to: STD = 4:3 width to height CINEMA = 16:9 width to height
REC TIME	ACCUM = Status Mode 1 Accumulated Record Time Status Mode 2 Remaining Record Time REMAIN = Status Mode 1 Remaining Record Time Status Mode 2 Accumulated Record Time
LENS TRIG	NONLOCK: Most 12 pin lenses use this momentary mode to trigger the VTR. LOCK: Many 8 pin lenses use this constant mode to trigger the VTR.

CAMERA SET UP

CONTOUR	NORMAL
M BLACK	NORMAL
IRIS DE	NORMAL
GAIN	0 : 9 : 18
AW2	AUTO
ZONE MODE	STD
REC TIME	ACCUM
LENS TRIG	NON LOCK

DEFAULT SETTING



4.10.2 CONTOUR CORRECTION (DETAIL ENHANCEMENT)

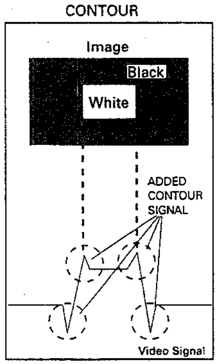
The amount of contour correction can be increased or decreased from the standard level.

Dark edges are made a little darker and Light edges are made a little lighter.

This can be very helpful to make low contrast scenes crisper.

If the scene originally has too much detail the contour correction can be reduced.

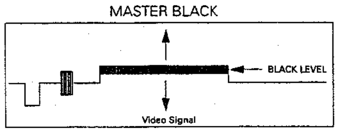
From this perspective it is better to keep the contour enhancement to a minimum, or test to see what happens to questionable scenes after post production and distribution.



4.10.3 MASTER BLACK LEVEL

The amount of contour correction can be increased or decreased from the standard level.

In NTSC cameras that have "Set-UP" (required by broadcast standards the black level cannot be reduced below 7.5 IRE.



4.10.4 IRIS DETECT

See the IRIS SECTION 4.7.2 for reasons to select the different exposure detection configurations.

4.10.5 GAIN (SENSITIVITY) ASSIGNMENT

See the Gain section 4.5 for a discussion of gain.

There are five gain selection assignments:
•:••:••• =0:9:18, 0:ALC:18, 0:6:ALC, 0:6:9, 0:6:12

GAIN chart

<table>
<tr><td>•</td><td colspan="5">0dB*</td></tr>
<tr><td>••</td><td>ALC (0 - 18 dB)</td><td>9dB*</td><td colspan="3">6dB</td></tr>
<tr><td>•••</td><td colspan="2">18dB*</td><td>ALC (0-18dB)</td><td>9dB</td><td>12dB</td></tr>
</table>

* Factory Setting

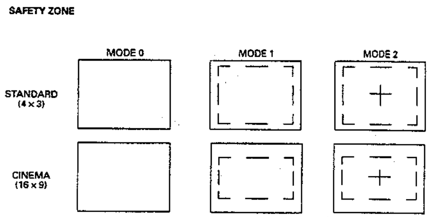
4.10.6 FULL TIME AUTO WHITE/ AUTO WHITE MEMORY 2

See section 4.2.2 for the principle behind Full time Auto White.

4.10.7 SAFETY ZONE

The Safety zones cycle within two different ratio types.

The Cinema mode is useful for determining the safety zone when cropping for 16:9 cinema ratio presentation.



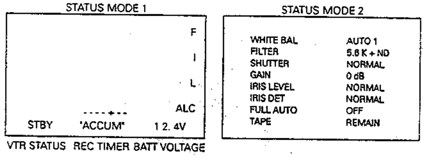
4.10.8 REC TIME

The Status 1 Display mode can show either Accumulated Record Time or Remaining Record Time.

The two categories swap position between Status 1 and Status 2.

Accumulated Record Time is measured from when the trigger is activated to when it is shut off. This may differ from actual tape time due to the delay for the deck to preroll and physically begin to record.

Remaining Record Time is an estimate of the remaining tape time based on the actual tape length.



WHITE BAL	AUTO 1
FILTER	5.6 K + ND
SHUTTER	NORMAL
GAIN	0 dB
IRIS LEVEL	NORMAL
IRIS DET	NORMAL
FULL AUTO	OFF
TAPE	REMAIN

REC TIME SET TO "ACCUM"

4.10.9 LENS TRIGGER

Different lenses have different trigger modes.

Most 12 pin lenses use the momentary NONLOCK mode to trigger the VTR.

Many 8 pin lenses use the constant Lock mode to trigger the VTR.

4.10.10 SYSTEM RESET

To quickly reset all camera setup values and function conditions back to the default settings, hold in the SET button while turning the camera power to ON with the OPERATE switch.

All functions with momentary switches will be reset.

All functions with mechanical switch positions will keep that switch setting.

White Balance Memories will not be affected.

See the chart for default conditions.

System Defaults	
Camera Setup	
Contour	Normal
Master Black	Normal
Iris Detect	Normal
Gain	0:9:18
Auto White Memory 2	Auto White Memory 2
Sefety Zone Mode	Standard (4x3)
Record Time	Accumulated
Lens Trigger	Non Lock

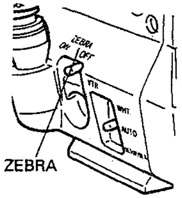
System Defaults	
Function Conditions	
Iris Over/Normal/ Under	Switch Position
Full Auto Shooting	Off
LOLUX	Off
Shutter ON	1/100
Variable Scan	1/60
Status Mode	Mode 0
Safety Zone	Off
Accumulated Record Time	00:00
White Balance Memories	No Change

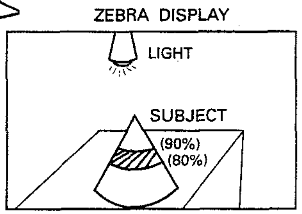
4.11 ZEBRA PATTERN (VIDEO LEVELS)

Pressing this switch momentarily turns on or off a Zebra stripe pattern in areas of highlights between 80 to 90 percent brightness in the viewfinder.

If you cannot achieve a zebra pattern in areas brighter than a operators face, or in highlights in general, you should consider adjusting for greater gain.

If dark areas contain zebra patterns you should consider adjusting for a higher shutter speed or using the Neutral Density filter.





4.12 LENS CLOSE-UP MACRO FUNCTION

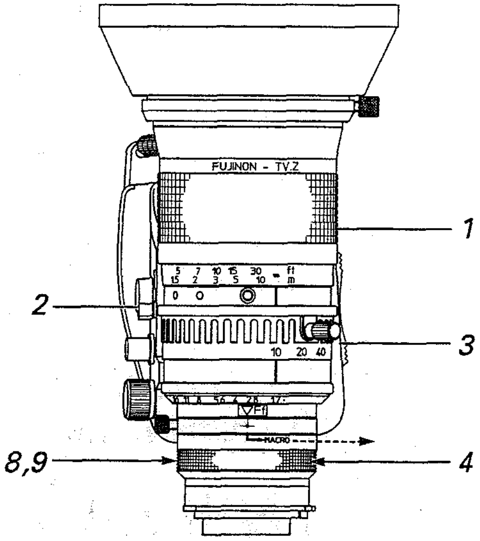
The Macro function of standard lenses used with the KY-27 allows the shooting of very small and very close objects.

The minimum distance from the standard lens to the subject is around 20 millimeters at the 10.0 widest angle zoom setting.

OPERATION

1. Set Focus to the Infinity position.
2. Select Manual Zoom mode
3. Set Zoom to the Widest angle position
4. Turn the Macro ring until it stops in the full Macro position.
5. Position the camera so as to give the necessary subject image size.
6. Now focus on the subject using the Macro Ring instead of the Focus Ring.

   The focusing range with the Macro Ring is from close to Infinity if the Focus Ring is in the Infinity position.
7. To make the object image size smaller reposition the camera.
8. Adjust the focus again with the Macro Ring.
9. 'Remember to disengage the Macro Ring when finished.



COLOR BARS, ADJUSTING EXTERNAL MONITOR 4.13

The color bar signal is activated by pushing the MODE switch down in the "BARS" position.

VTR and POST PRODUCTION USE

It is very important to record color bars at the beginning of every tape and after the camera setup has been adjusted.

Without recording color bars there is no good reference for all the colors levels or the dark to light range.

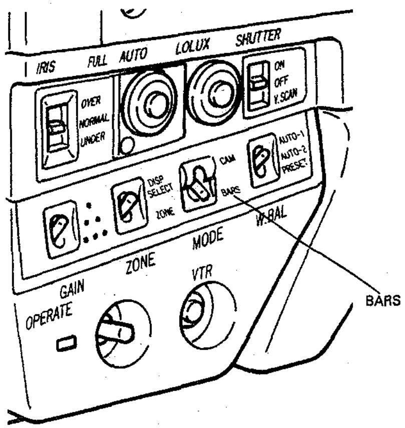
Later, varied and random adjustments of post production equipment could tend to distort the color, brightness and contrast of the picture.

GENLOCK USE

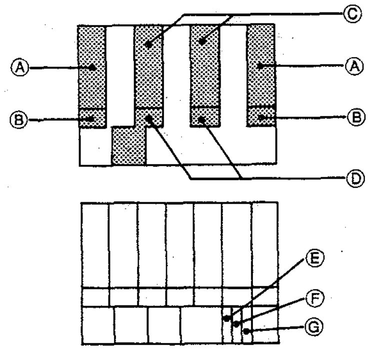
The color bars are also vital for setting the phase relationship of different cameras used in a multi camera system. See Genlock section 5.3.

MONITOR SET UP USE

Color bars are also the basic tool in setting a monitor's color, contrast and brightness set-up to reference levels. This is very important for knowing when to adjust the white balance of the camera.



1. Connect a color monitor to the cameras composite video out terminal.
2. Set the camera to Bars output.
3. Set the monitor to display the Blue only signal.
4. Turn the monitor's chroma control so that sections marked Ⓐ and Ⓑ are the same brightness.
5. Turn the monitor's hue control so that sections Ⓒ and Ⓓ are the same brightness.
6. Set the monitor to display all three colors, RGB.
7. Turn the monitor's Bright control so that section Ⓔ disappears and section Ⓖ just barely appears.



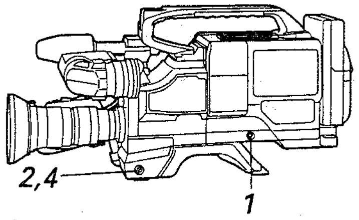
5 OPERATION WITH OTHER EQUIPMENT

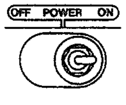
5.1 OPERATING PROCEDURE WHEN DOCKED WITH PROFESSIONAL S-VHS OR OTHER VTRs.

First install the Dockable VTR with the correct adapter, or if necessary have your dealer install the VTR. See section 6 for installation instructions.

The complete basic camera preparation in section 3.1 and 3.2 and proceed to operate the system as a camcorder. (Shown by using BR-S422 VTR)

5.1.1 BASIC RECORDING OPERATION



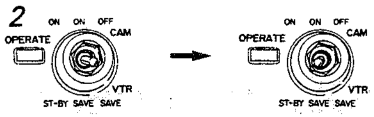

1
OFF POWER ON
VTR POWER SWITCH

1 VTR POWER ON

Install a charged battery pack or plug in the AC power adapter.

Set the Master Power Switch on the VTR to ON.

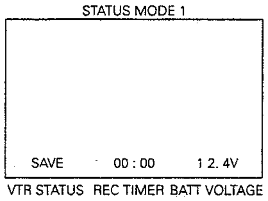
The VTR is now in Stop Mode and the head drum is not spinning. The Camera is off, but the Iris is held closed to protect the CCDs. Operate light is Dim Red.


2
ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE
ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE

2 TURN ON THE CAMERA

Switch the OPERATE switch ON/SAVE.

The viewfinder is now on. The camera auto iris will now open the iris. The VTR is still in the stop mode. If the status display is switched to mode 1, The viewfinder reads its STATUS as SAVE. Operate light is Bright Red.


STATUS MODE 1
SAVE
00 : 00
1 2. 4V
VTR STATUS
REC TIMER
BATT VOLTAGE

3 PREPARE THE CAMERA

Perform basic use set up steps 3.2.1 up to 3.2.9.

This includes Switch setting, Set up, White balance, and tripod mounting.

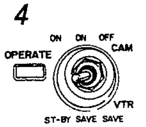
4 ENABLE THE CAMERA AND VTR

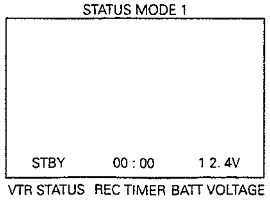
Change the OPERATE switch to ON/ST-BY.

Operate light is Bright Red.

The VTR can be safely set in to record mode now. It is better to load a cassette after this step because the VTR can be commanded to load the tape around the heads without rapidly dropping the VTR into Save mode. Proceed to Save mode after determining that the tape is properly loaded.

If a tape happens to be in the VTR already the transition to the record Pause mode will be more controlled.


4
ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE

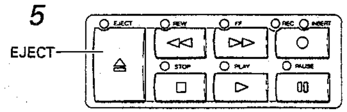

STATUS MODE 1
STBY
00 : 00
1 2. 4V
VTR STATUS
REC TIMER
BATT VOLTAGE

5 INSERT CASSETTE

Press the EJECT button to open the cassette holder. The eject indicator blinks.

Insert a cassette. Make certain before loading the cassette that the tape is not slack. Close the cassette holder slowly .

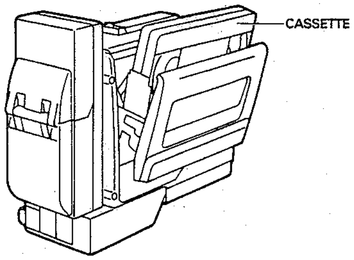
When ejecting a cassette, first engage the Stop or Record-Pause mode.


5
EJECT
EJECT
REW
FF
REC
INSERT
STOP
PLAY
PAUSE

6 TO PROTECT TAPE

In the Record-Pause mode, the recorder automatically reduces the tape tension and drum rotation stops after about 30 minutes. If further recording is required, press the camera's VTR start/stop button, or press PLAY. The drum will start rotating and recording will restart after 8 or 10 seconds.

If you want to return to the Record-Pause mode when drum rotation has stopped, press the camera's VTR start/stop button twice.



7 SET UP SHOT

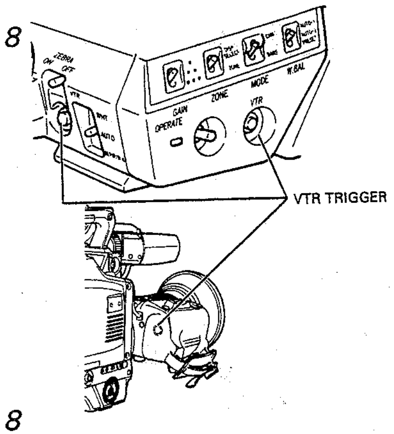
Adjust video image for focus and zoom angle. (see section 3.2.4 on lens use)

8 PUSH VTR TRIGGER TO RECORD

Push the trigger on the camera or lens.

The tape deck will enter record in about 2 seconds. The STATUS 1 viewfinder display will show the word REC.

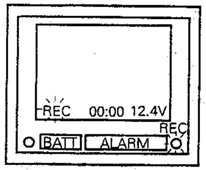
The viewfinder REC/ALARM light will blink green during pre-roll and then turn solid when the VTR enters Record Mode.


8
GAIN
OPERATE
ZONE
MODE
W.BAL
VTR
VTR TRIGGER

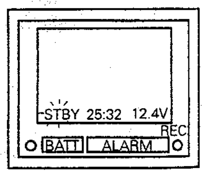
9 PUSH VTR TRIGGER AGAIN TO STOP RECORDING

The VTR will return to Record-Pause Mode. The Green REC/ALARM LED will go out and the STATUS 2 message will change to STBY.

8


REC 00:00 12.4V
REC
BATT
ALARM

9


STBY 25:32 12.4V
REC
BATT
ALARM

5.1.2 POWER SAVE OPERATION

After placing the VTR in record pause mode (steps 1 to 6) or after using the trigger to stop recording (steps 1 to 9), it is possible to save power by parking the heads of the VTR in record pause mode with the tape laced around the head drum.

Further power can be saved by turning the camera off in this mode.

(Hi8 decks have no power save mode)

10 SWITCH THE VTR TO SAVE

Switch from OPERATE "ON/ST-BY" to "ON/SAVE"

The VTR power is now off in Record Pause mode. A picture is visible in the viewfinder.

WARNING: Do not trigger the VTR in this mode (See page 41)

11 SWITCH THE CAMERA TO OFF

Switch from OPERATE "ON/SAVE" to "OFF/SAVE" Both the Camera and VTR power are off with Tape laced on the video head drum in record-pause mode.

12 SWITCH THE CAMERA ON

Switch OPERATE from "OFF/SAVE" to "ON/SAVE" The Viewfinder and camera turn on.

13 TURN THE VTR BACK ON

Switch OPERATE from "ON/SAVE" to "ON/ST-BY. The VTR head drum is spinning again and Record-Pause Mode has been activated.

14 START AND STOP RECORDING

Push the trigger on the camera or lens to record, and again to stop recording.

5.1.3 SAFELY ENDING A RECORDING SESSION AND EJECTING

After entering Record-Pause mode through steps 1 to 6, 1 to 9 or 1 to 14 some care must be taken to end the recording session without damaging the tape.

15 UNWRAP THE TAPE FROM THE HEAD DRUM

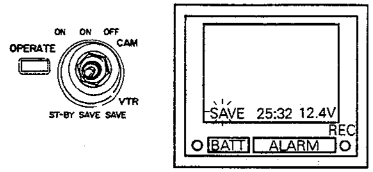
Open the VTR panel and push the stop button. Switch the VTR to Stop mode.

The Tape is unlaced from heads.

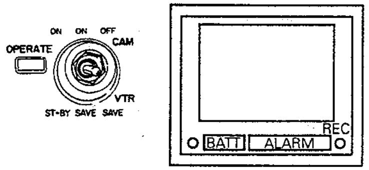
16 EJECT THE TAPE

Press the eject button on the VTR to remove the tape.

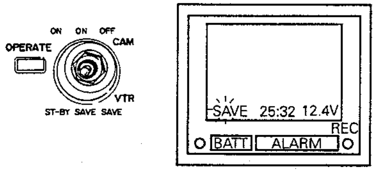
10


ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE
SAVE 25:32 12.4V
REC
BATT
ALARM

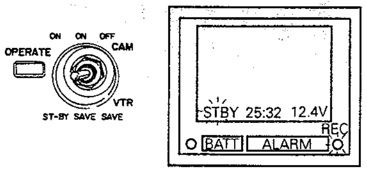
11


ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE
REC
BATT
ALARM

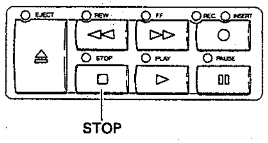
12


ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE
SAVE 25:32 12.4V
REC
BATT
ALARM

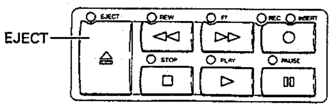
13


ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE
STBY 25:32 12.4V
REC
BATT
ALARM

15


EJECT
REW
FF
REC
INSERT
STOP
PLAY
PAUSE
STOP

16


EJECT
EJECT
REW
FF
REC
INSERT
STOP
PLAY
PAUSE

17 SHUT THE CAMERA OFF

Change the OPERATE switch to OFF/SAVE.

The Viewfinder and Camera will turn off.

18 SHUT THE VTR OFF

Switch VTR master power to off.

Ejecting the tape will not be possible after waiting until this step. Turn the master power back on to eject the tape.

5.1.4 MONITORING EE PICTURE

After the VTR has been placed in Record/Pause mode it is possible use the RET (Return Video) switch to monitor the video signal from the deck.

Pay attention to the REC/ALARM light in the viewfinder to check if Recording is on.

WARNING: The viewfinder STATUS DISPLAY MODES 1 and 2 are not shown in this mode. The VTR STATUS will not be shown in the viewfinder image. If there is no STATUS display in the viewfinder check this switch first!

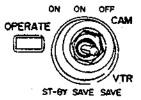
EE stands for Electric to Electric. This means that the video signal is being sent back to the camera from the VTR, but before it is recorded on the tape.

This is a safety position to make sure all the connections are correct, but does not let you know if the heads are dirty during recording.

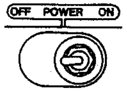
5.1.5 MONITOR SOUND LEVELS AND SIGNAL DURING RECORD OR PLAYBACK

The audio signal level can be checked on the VTR audio level meter or in state display mode 1 in the camera's viewfinder. The audio signal can be monitored by a monitor speaker or an earphone. When the earphone is plugged into the earphone jack, the monitor speaker is automatically cut out. See the VTR instruction manual for details.

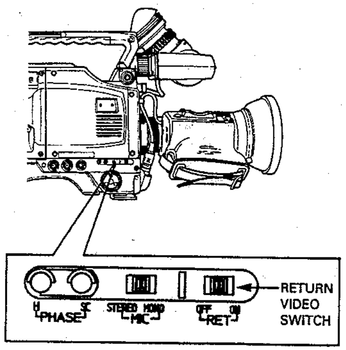
17

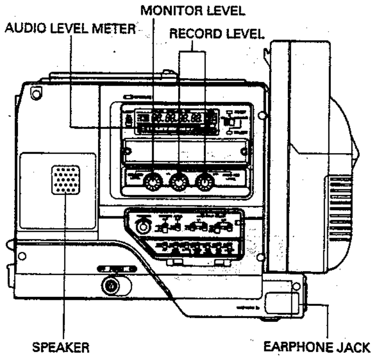

ON ON OFF
OPERATE
CAM
VTR
ST-BY SAVE SAVE

18


OFF POWER ON

VTR POWER SWITCH


H
SC
PHASE
STEREO MONO
MIC
OFF ON
RET
RETURN VIDEO SWITCH


MONITOR LEVEL
AUDIO LEVEL METER
RECORD LEVEL
SPEAKER
EARPHONE JACK

5.2 OPERATION WITH EXTERNAL VTR

5.2.1

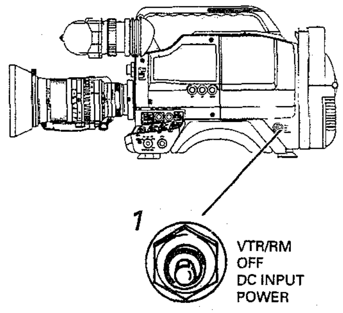
The KA-27 Camera adapter allows the Stand-alone use of the camera:

To power the camera so as to supply video directly from the KA-27 Y/C video output or the camera Composite video output.

To connect directly to a Portable VTR or Remote Camera Control Unit through the multipin connector.

The KA-27 adapter is not intended for use with any other cameras.

See section 3.2.1 chart on page 36 for an overview of the KA-27 switch positions.


1
VTR/RM
OFF
DC INPUT
POWER

5.2.2 KA-27 TYPICAL SWITCH SETTINGS

1 POWER MASTER SWITCH

Choose the power source:

VTR/RM: VTR power through Multipin connector.
DC INPUT: Power from onboard Battery pack or 4 pin DC input.
(The 4 pin input has priority over the on-board battery.)

2 CAMERA/ADAPTER MIC SWITCH

Choose the Camera mic input or the Adapter mic input.

3 MIC AUDIO OUTPUT LEVEL SWITCH

Match the Adapter Audio output level to the portable VTR input level, -20 dB line or -60 dB Mic level.

See chart page 36.

4 COMPONENT VTR MII/BETA SELECT SWITCH

Choose the MII or Beta standard Component output.

5 SIGNAL OUTPUT: COMPONENT/YC/RGB SWITCH

Choose one of these three signals to supply the VTR through the multipin cable.

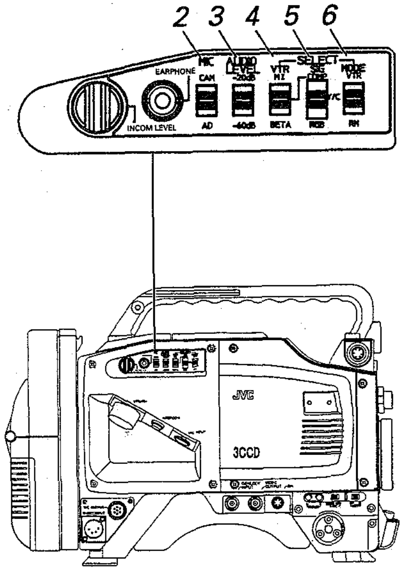
A composite signal is always available in the multipin.

See chart page 36.

6 VTR/REMOTE CONTROL UNIT SWITCH

Set to VTR for any kind of VTR connection.

Note: Certain 10 pin connector VHS VTRs with Ground Start trigger modes require an internal adjustment to the KA-27. See the chart on page 36 and consult your service representative.


2
3
4
5
6
MIC
AUDIO LEVEL
SELECT
VTR
SIG
MODE
EARPHONE
CAM
-20dB
MI
CMP
VTR
Y/C
INCOM LEVEL
AD
-60dB
BETA
RGB
RM
JVC
3CCD

Internal power from AG-7400, AG-6400, BR-1600 is marginal and not advised.

These features are not available on some decks.

- Remote control
- Rec indicate
- VTR alarm
- Audio monitor
- E to E video
- battery alarm

5.2.3 KA-27 INPUT AND OUTPUT CONNECTIONS

Be sure to turn off the power while making connections.

1 VIDEO OUTPUT (Y/C 358 NTSC)(Y/C 443 PAL)

Video output is for Camera Video only. Return Video from the VTR, or Viewfinder STATUS are not available. This output is always active.

2 DC INPUT

12 V power connector selected by switch $\boxed{1}$ and has priority over the Internal Battery Pack mounted on the back of the KA-27.

3 REMOTE CONTROL/VTR MULTIPIN CONNECTOR

See the chart for proper cables for different VTRs.

4 INTERCOM CONNECTOR

This is for talk back intercom use with the Camera Control Unit. The Headset should be configured with a connector with the proper tip/ring/sleeve configuration and headset and microphone impedance. This changes with different applications of the remote control units RM-P200 or RM-P300.

5 MICROPHONE INPUT (BALANCED)

Select this mic level only input with switch.

6 INTERCOM LEVEL CONTROL

Set the volume of the intercom headset

7 EARPHONE CONNECTION

Monitors the E to E audio signal returned from the VTR.

The VTR may need to be in record/pause mode for audio monitoring.

Some VHS Only VTRs do not send return Audio.

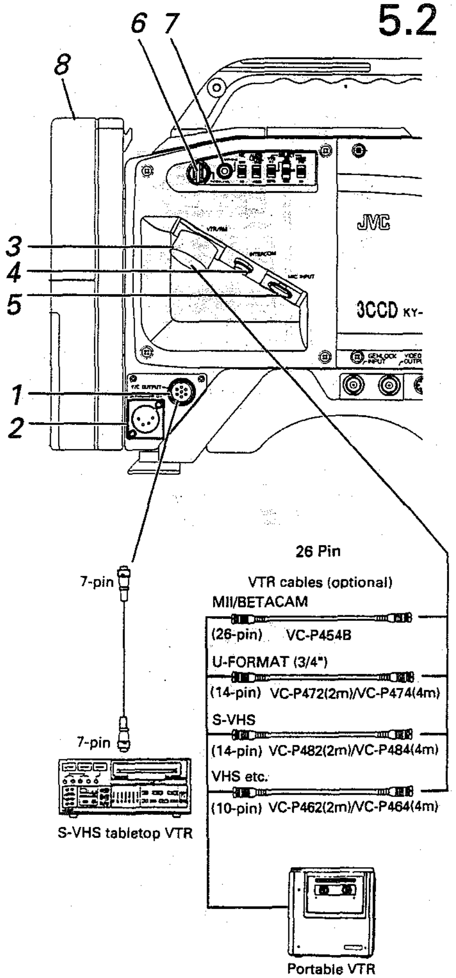
8 BATTERY HOLDER

The standard battery holder can be used for Flat shape type and JVC NB-G1 Batteries.

The 4pin 12V DC connector has priority over this battery holder.

5.2.4 VTR CABLE CHART

The VTR cables are shown in the Graphic.


6
7
8
3
4
5
1
2
JVC
3CCD KY-
7-pin
7-pin
S-VHS tabletop VTR
26 Pin
VTR cables (optional)
MII/BETACAM
(26-pin) VC-P454B
U-FORMAT (3/4")
(14-pin) VC-P472(2m)/VC-P474(4m)
S-VHS
(14-pin) VC-P482(2m)/VC-P484(4m)
VHS etc.
(10-pin) VC-P462(2m)/VC-P464(4m)
Portable VTR

NOTE: When S-VHS portable VTR is connected, it is recommended to use −20dB audio output on camera and H input level (−20dB) on VTR.

5.3 GENLOCK OPERATION

The genlock function is provided for synchronizing the camera video output signal with other cameras, switchers or devices.

The camera's signal can be adjusted relative to a reference black burst or composite video signal.

The video signal itself can be synchronized even if the camera is being used as a camcorder.

The camera can be genlocked through the external genlock input or through the camera remote control unit.

Phase adjustment

After supplying a genlock reference source, adjusting the two controls on the right side of the camera will conform the horizontal phase and color phase.

H:

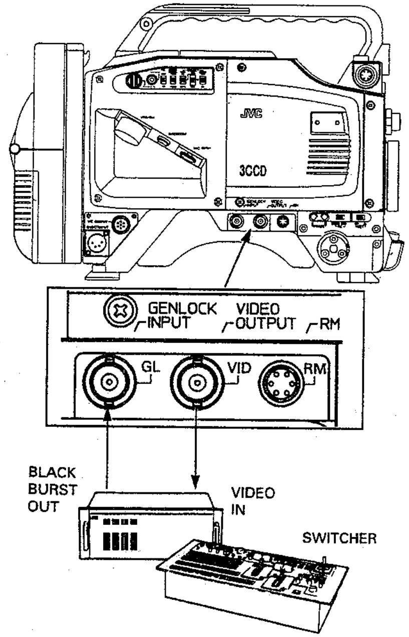
The **Horizontal Sync Phase** adjustment controls the position of the scan very precisely so that the reference and the output video are locating the scan at precisely the same point in the picture at the same time.

A badly adjusted horizontal sync phase can cause a complete failure to see an image, and minimally causes a horizontal shift between two similar pictures.

SC:

The **Color Subcarrier Phase** will precisely match the color hue of the reference and the video output. This phase relationship is described by 360 relative degrees, easily viewable with a color bars signal and a Vector scope.

The most precise adjustment can only be made with the use of external test instruments such as a waveform monitor or oscilloscope and a vectorscope, but the these settings can be approximated with careful examination of the picture.



5.4 REMOTE CONTROL UNITS

5.4.1 KA-27 SETTINGS AND CONNECTIONS

Before connecting the Remote Control Unit, make sure that all power switches are off.

Select the needed signal; component, RGB or Y/C with switch [5] on the KA-27.

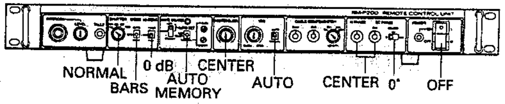
Select Component MII or Betacam signals with switch [4] on the KA-27. (See page 66.)

5.4.2 RM-P200

The RM-P200 is a versatile camera control unit that combines many features needed for studio or remote Stand-Alone operation.

Control and power is supplied for the camera to a distance of 100 Meters (325 feet) using the optional VC-P110 series camera cables. Cable Signal Level compensation is finely adjustable. Intercom connection and Tally trigger / indication are provided.

RM-P200



(FACTORY SETTINGS)

Camera control includes:

- Shutter speed
- Camera / Bars
- Gain
- Automatic White Balance
- Manual White Balance with Red Gain and Blue Gain
- Return Video
- Black Balance / Auto Set
- Master Black level
- Iris, Manual and Auto

Genlock functions, Loop through Reference video connection as well as SC phase and H phase adjustment are all possible from the remote unit with controls located on the front panel.

Two composite video outputs are provided, as well as a choice of either RGB, Component or Y/C output.

These basic functions are controlled completely by the serial data connection to and from the camera.

Other advanced functions such as LOLUX or Full Auto Shooting, Full Time Auto White, Variable Scan and others are not controlled.

Please check with the RM-P200 manual for further operating instructions.

Accessories:

VC-P110 series cables
5m, 20m, 50m, 100m
KA-280 cable adapter (for extension)
KA-300 headset

5.4.3 RM-P300 AND RM-LP821

The RM-P300 Camera control unit can be extended up to 300 Meters (984 feet) from the camera.

In addition to all the basic functions of the RM-P200, the RM-P300 adds comprehensive front panel warnings.

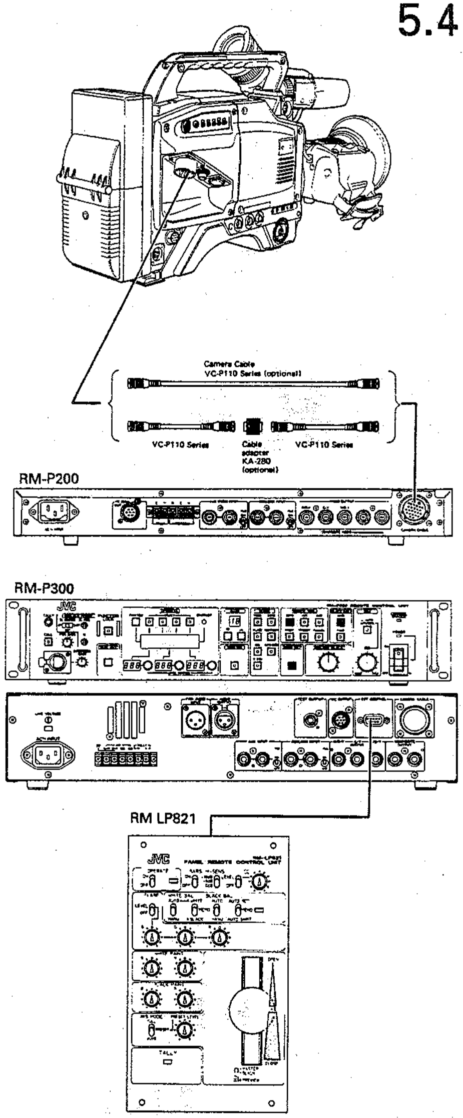
Additional advanced functions:

- Manual Black balance (Paint)
  (with Red Gain and Blue Gain)
- Contour control
- Function Lock
- Call tally function
- External control through RS-232
- 4 wire intercom

The RM-LP821 Remote Unit allows control of the important variables remotely from the rack unit, including a master fader for the IRIS and pedestal.

Accessories:

VC-P110 Series Cable
5m, 20m, 50m, 100m
KA-280 Cable Adapter (for extension)
RM-LP821 Panel Remote Control
KA-310 Head Set



5.5 LOCAL REMOTE AND COMPUTER CCU CONTROL

The KY-19 can be remotely controlled by the stand alone RM-LP80 control unit and by Computers such as IBM through the RS-232C cable or Macintosh through the Macintosh cable.

5.5.1 RM-LP80/LP35/LP37 CONNECTION

The connection with the camera is through the six pin connector on the camera head. A 5 meter cable is supplied with the RM-LP80/LP35/LP37.

5.5.2 REMOTE OPERATION

To configure the camera for the RM-LP80/LP35/LP37 set the Iris Mode switch on the lens to Auto.

5.5.3 CONTROLS

Set the **Operate Switch** on the RM-LP80/LP35/LP37 to ON to use.

Functions not available

The following functions are not available on the camera, so they cannot be operated using the local remote control.

RM-LP80 :	TEST OUT SELECT switch AUTO SHIFT function
RM-LP35 :	Gain switching –3 dB Knee point adjustment Flare correction function Black stretch switch Gamma correction function
RM-LP37 :	Flare correction function

Notes

- If the local remote control and the camera have the same switch function, the local remote control is given higher priority, and the function cannot be controlled from the camera.
- The sensitivity select switch is set to the value specified by the local remote control regardless of the camera setting.
- The camera's Lolux and full auto-shooting functions are not available while the local remote control is active.

See the local remote control instruction manual for details.

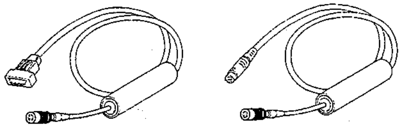
5.5.4 COMPUTER CCU CONTROL

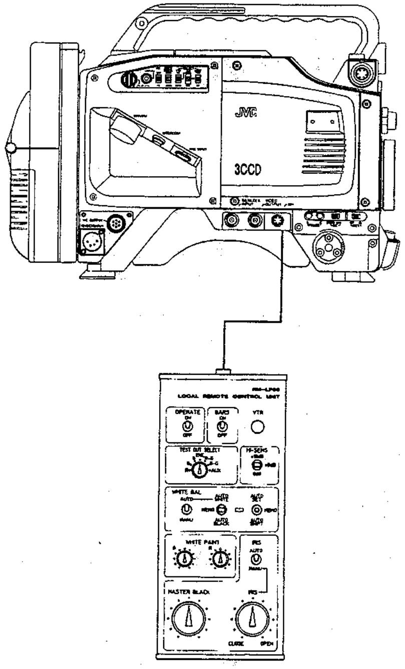
The computer control cables and software can control the same features as Local Remote Control.

Additional features include Shutter speed and Contour (Detail) on/off.

Please check with your dealer for the proper cables and software. RS-232C and Macintosh cables are available.

VC-P891 / VC-P892
(for IBM-PC) (for Macintosh)





JVC
3CCD
RM-LP80
LOCAL REMOTE CONTROL UNIT
OPERATE
ON
OFF
BARS
VTR
TEST OUT SELECT
AUX
HI-SENS
WHITE BAL
AUTO
AUTO WHITE
AUTO SET
MEMO
MANU
AUTO BLACK
AUTO SHIFT
WHITE PAINT
IRIS
AUTO
MANU
MASTER BLACK
IRIS
CLOSE
OPEN

INSTALLATION AND PREPARATION 6

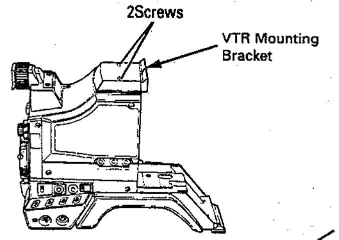
KA-27 CAMERA ADAPTER 6.1

1 The KY-19/KY-27 is supplied disconnected from the KA-27 adapter.

The first step is to remove the VTR Mounting Bracket that is used for some docking VTRs.

There are 2 screws holding the bracket in place.

1

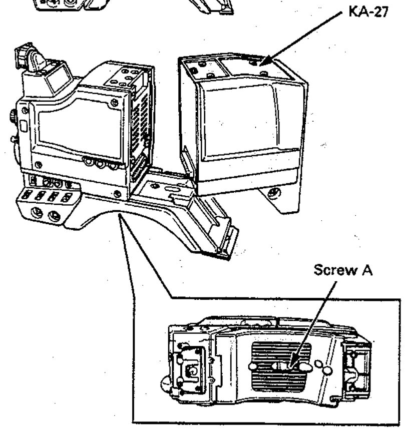


2Screws
VTR Mounting Bracket

2 Next slide the KA-27 on to the back of the KY-19/KY-27, engaging the 50 pin parallel connector.

3 Use Screw A to lock the KA-27 to the shoulder rest mount.

2,3

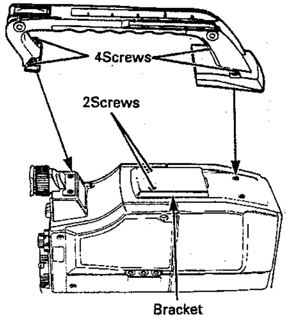


KA-27
Screw A

4 The KA-27 is supplied with a mounting bracket to replace the VTR Mounting Bracket. This is held in place with 2 screws.

5 The last step is to mount the Handle to the Viewfinder post and the KA-27. The Handle is secured with 4 screws.

4,5



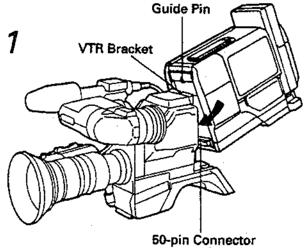
4Screws
2Screws
Bracket

6.2 DOCKABLE VTRS

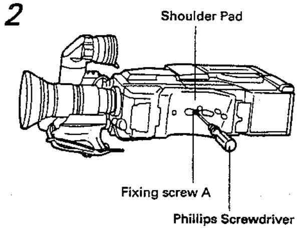
6.2.1 BR-S422 VTR ATTACHMENT

The BR-S422's connection to the camera is basically the same as the connection of the KA-27 except the VTR bracket is not taken off when connecting the BR-S422.

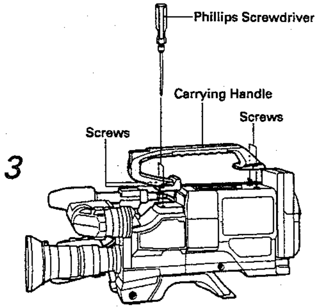
1 Align the BR-S422's guide pin with the V groove of the camera's VTR bracket after removing the cap of the 50-pin connector. Securely engage the BR-S422's 50-pin connector to the camera's.


1
Guide Pin
VTR Bracket
50-pin Connector

2 Secure the BR-S422 to the camera by inserting the fixing screws A through the camera's shoulder pad, using a Phillips screwdriver.


2
Shoulder Pad
Fixing screw A
Phillips Screwdriver

3 Secure the provided carrying handle to the camera and the BR-S422 with four screws, using a Phillips screwdriver as illustrated.


Phillips Screwdriver
Carrying Handle
Screws
Screws
3

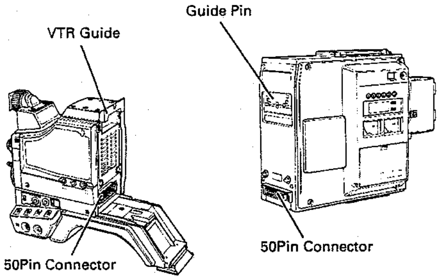
6.2.2 BR-S411B VTR ATTACHMENT

The BR-S411B is attached using the same principle as the KA-27 adapter, with two exceptions.

1. The VTR Mounting Bracket should not be removed
2. The KA-232B Carrying Handle is optional and must be ordered separately.

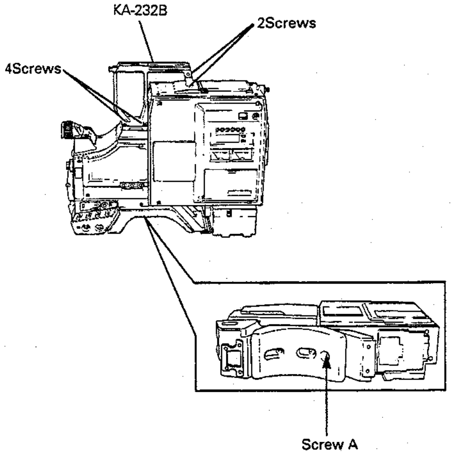
1 Remove the Standalone adapter from the BR-S411B.

2 First slide the BR-S411B on to the back of the camera, engaging the guide pin and the 50 pin parallel connector.


VTR Guide
Guide Pin
50Pin Connector
50Pin Connector

3 Use Screw A to lock the BR-S411B to the shoulder rest mount.

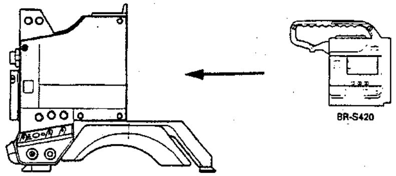
4 The last step is to mount the Handle to the Viewfinder post and the BR-S411B. 4 screws secure the Handle to the camera and 2 screws secure the handle to the deck.


KA-232B
2Screws
4Screws
Screw A

6.2.3 BR-S420C VTR ATTACHMENT

Docking the BR-S420C is identical to the procedure form the BR-S411B. (There is no standalone adapter for the BR-S420C).

The handle is included with the BR-S420C.



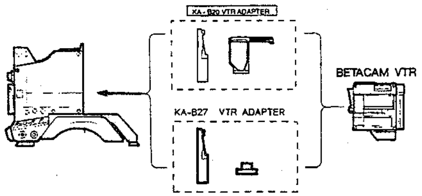
6.2.4 BETACAM® SP VTR ATTACHMENT KA-B20/B27

To dock with Broadcast Betacam SP decks such as a BW-5, the KA-B20/B27 VTR adapter is required.

The VTR Mounting Bracket should not be removed.

The following are shown by KA-B27 adapter.

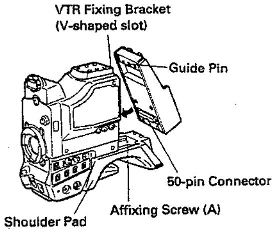
Docking with Betacam SP.


KA-B20 VTR ADAPTER
KA-B27 VTR ADAPTER
BETACAM VTR

1 Align the guide pin of the KA-B27 with the V-shaped slot on the rear of the camera section. Insert the guide pin in the slot while pressing the KA-B27's 50-pin connector to the corresponding connector on the rear of the camera section to dock them with each other.

Tighten an affixing screw (A) under the shoulder pad as shown below.

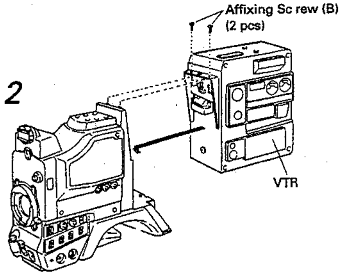
1


VTR Fixing Bracket
(V-shaped slot)
Guide Pin
50-pin Connector
Affixing Screw (A)
Shoulder Pad

2 If the VTR is equipped with a handle, remove the handle before attaching the adapter.

Slide the VCR onto the rear of the adapter to dock them with each other, and secure them with two affixing screws (B) provided with the VTR as shown below.

2

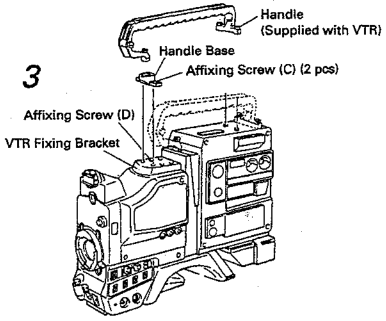

Affixing Screw (B)
(2 pcs)
VTR

3 Attach the provided handle base to the top of the camera with two affixing screws (C).

To fit the VTR fixing bracket to the camera again, push it in the direction of the front side while fixing it with two affixing screws (D).

Fit the camcorder with the handle that was removed from the VTR in the above step 1 as shown below.

3

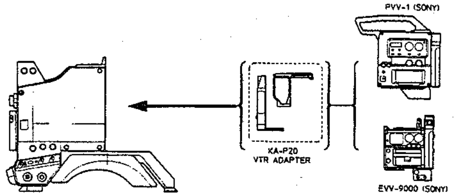

Handle
(Supplied with VTR)
Handle Base
Affixing Screw (C) (2 pcs)
Affixing Screw (D)
VTR Fixing Bracket

6.2.5 BETACAM® PROFESSIONAL/ Hi8 VTR ATTACHMENT KA-P20

Batacam Professional decks and Hi8 decks such as the EVV-9000 can be mounted in the field using the KA-P20 adapter.

This includes the adapter plate and the handle.

The VTR Mounting Bracket should not be removed.

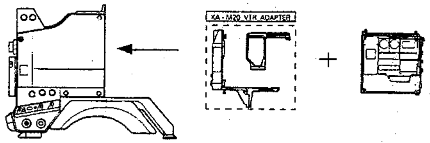

PVV-1 (SONY)
KA-P20
VTR ADAPTER
EVV-9000 (SONY)

6.2.6 MII VTR ATTACHMENT KA-M20

To dock with the MII VTR, an adapter is needed. The KA-M20 VTR adapter includes an adapter plate and the proper handle.

The VTR Mounting Bracket should not be removed.

Docking with MII VTR (AU-400/410 Panasonic)

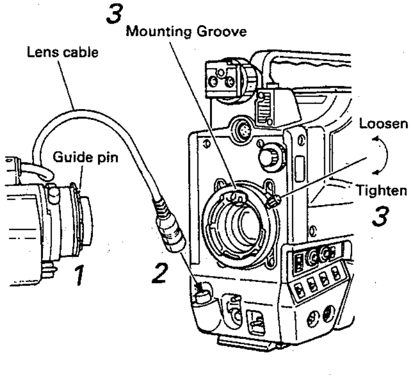

KA-M20 VTR ADAPTER
+

6.3 LENS ATTACHMENT

1 Remove the mount cap. Be careful there is no dust left inside the mount.

2 Connect the lens cable to the camera head.

3 Align the groove in the mount with the guide pin on the lens. Turn the mount ring clockwise so the lens is secured firmly on the lens mount.



Notes:
- Be sure to tighten the lens completely, otherwise the back focus adjustment may be incorrect.
- It is recommended to read the instruction book of the lens carefully.

KY-27 only
When zoom lenses other than the specified optional lens A14 x 10 BRM12 are used, dynamic shading might occur at the upper and portions of the screen. Re-adjustment of the camera (charged) is necessary. Consult an authorized JVC Service Agent.

Note that the VTR Trigger switch of 8-pin lens is usually locked contact and of 12-pin lens is usually nonlocked.

In the Camera Set-Up menu a locked or nonlocked setting must be chosen.

6.4 VIEWFINDER ATTACHING/ DETACHING

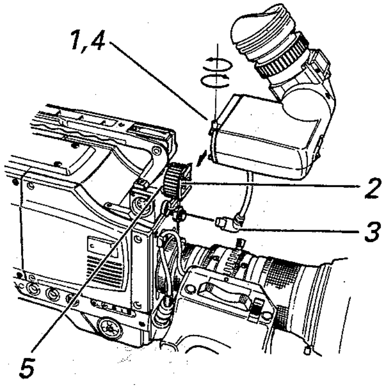
1 Loosen the stopper screw.

2 Attach the viewfinder with its guide aligned with the shoe.

3 Connect the cable.

4 Tighten the stopper screw.

5 Tighten the ring.



MICROPHONE ATTACHMENT 6.5

Attaching Microphone Holder

The KY-19/KY-27 camera comes with a standard Microphone Holder. This Holder can be used for JVC or other manufacturers microphones.

1 Attach the Microphone Holder using the three mounting screws.

2 Loosen the quick release clasp by turning the outside tightening knob.

3 Position the microphone in the holder. If it is a stereo microphone pay attention to the left and right orientation.

4 Use the inside and outside tightening knobs to adjust for the diameter of the microphone.
If the microphone does not fit, it is necessary to connect to the camera using a Shock Mount with the mounting shoe on the camera handle. These are available from various microphone manufacturers.

5 Shut the holder and tighten until firm.

6 Set the microphone Stereo or Mono switch on this side of the camera for the desired recording signal.

WARNING!
With a portable deck the Left Stereo signal will be recorded only, unless the select switch is set to mono.
With a mono microphone in the stereo mode, only the left audio channel of the Docked VTR will be recorded.

7 Be sure to match the KA-27 audio output level to the portable VTR required input level.

8 Set the KA-27 Camera Adapter Mic input switch.
CAM: The 6 pin input on the camera head
AD: The balanced 3pin XLR input on the adapter.

JVC MV-P612 STEREO microphone (Optional)

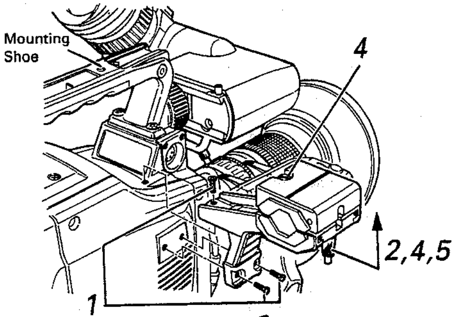
The JVC MV-P612 Stereo microphone should be attached using the 6pin connector next to the Microphone Holder. Push to connect only.

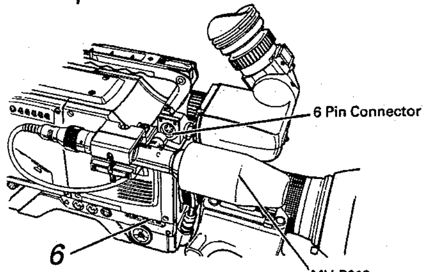
JVC M-K50, MV-P602 MONO microphones (Optional)

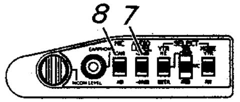
These mono microphones should be removed from the included mounting adapter.
The optional VC-P740 microphone cable should be connected instead.
Attach the microphone suing the 6pin input connector. Push to connect only.

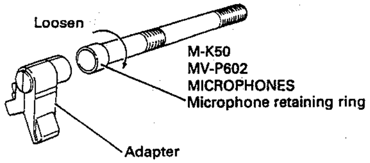
Other Microphones

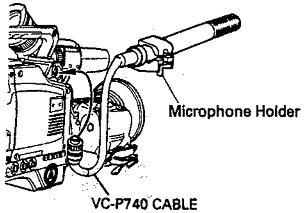
All other microphones should be connected to the 3pin balanced input on the KA-27 adapter, or directly to the inputs of the Docked deck.





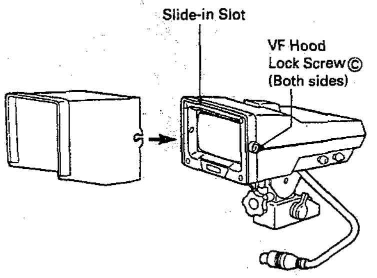




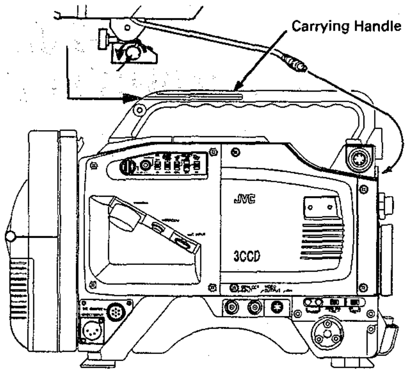


6.6 OPTIONAL STUDIO VIEWFINDER VF-P400/P550B

The studio viewfinder can be attached and powerd with the same viewfinder connection as the standard ENG viewfinder.



Mount the Viewfinder on the rear of the carrying handle using the slide bracket.
See the Viewfinder's manual for further instructions.



6.7 STUDIO KIT ATTACHMENT

Studio controls for tripod use with the lens used with this camera are available from JVC or from the Lens manufacturer.
These mount directly to the lens and include control over Servo Zoom, Mechanical focus and trigger functions.
The RM-LP80 remote unit can also be use for tripod control of trigger and camera set-up functions.

SPECIFICATIONS AND ACCESSORIES 7

SPECIFICATIONS 7.1

- **KY-27C with KA-27 Camera Adapter**

Optical system	F1.4 prism	
Pick up Device	2/3" IT 3CCD with on chip lens	
Picture Elements	U version	768H × 493V 380,000 active pixels
	E version	754H × 581V 440,000 active pixels
Lens Mount	2/3" Bayonet	
Sensing area	8.8mm x 6.6mm (2/3" equiv)	
Encoder	U version	R-Y, B-Y Wide-Band
	E version	PAL U, V ecoder
Scanning system	2:1 Interlaced,	
	U version	525 lines, 60 fields/sec.
	E version	625 lines, 50 fields/sec.

	U version	E version
Horiz frequency	15.734 kHz	15.625 kHz
Vertical frequency	59.94 kHz	50 Hz

Synchronization	External, Internal	
Color filter	1. 3200 Kelvin (neutral) 2. 5600 K 3. 5600 K + 1/16ND 4. Cross Effect 3200 K	
Sensitivity	F9 at 2000 lux, 0dB gain	
Minimum Standard Illumination	6 lux with F1.4, +18 dB gain	
LOLUX Minimum Illumination	1 lux with F1.4, +33 dB gain	
Signal to Noise Ratio (Typical)	U version	62 dB
	E version	60 dB
Resolution		
Y channel	800 Horizontal Lines	
RGB channels	540 Horizontal Lines	
Registration	0.05% or less (Without lens distortion)	
Geometric Distortion	Below measurable level	
Color Bars	U version	SMPTE type
	E version	Full Field
Gain Boost	0,6,9,12,18,Variable gain in ALC	
Shutter Speeds	1/60*, 1/100*, 1/250, 1/500, 1/1000, 1/2000, Variable Shutter in ALC (*1/50, 1/120 for E version)	
Variable Scan	1/60.2 - 1/1966.7, 256STEPS	
	U version	1/60.1 – 1/2074.6
	E version	1/50.1 – 1/2061.8

OUTPUTS

Composite	BNC, 26Pin 1 Vp-p/75 Ohm	
Y/C	7 Pin, 26 Pin Y: 1 Vp-p/75 Ohm (with sync) C:	
	U version	0.286 Vp-p/75 Ohm
	E version	0.3 Vp-p/75 Ohm
Component	26 Pin Y: 1 Vp-p/75 Ohm R-Y, B-Y:	

	MII position	BETACAM position
U version	0.486 Vp-p	0.7 Vp-p
E version	0.525 Vp-p	0.525 Vp-p

Impedance = 75 Ohm

RGB	26 Pin 0.7Vp-p/75 Ohm	
Audio	26 pin -60dBm/-20dBm selectable 600 Ohm balanced	

INPUTS

Genlock	BNC, 26 pin VBS: 1 Vp-p/75 Ohm BB:	
	U version	0.43 Vp-p 75 Ohm
	E version	0.45 Vp-p 75 Ohm
Return Video	26 Pin, 50 pin docked VBS 1 Vp-p/75 Ohm	
Audio	Mic level JVC 6pin, XLR JVC 6pin: -52dBm Unbalanced 9V power, Stereo/Mono XLR: -60dBm (Balanced)	
Voltage	12V DC	
Power (Typical)	12.6 Watts with camera adapter, Viewfinder. 12.1 Watts with viewfinder only. 9.8 Watts without adapter, Viewfinder.	
Temperature Range	–10 to +45 degrees C, 14 to 104 degress F	
Weight	3.8 Kg with camera adapter and Viewfinder	

- **KY-19 with KA-27 Camera Adapter**

Optical system	F1.4 prism
Pick up Device	1/2" IT 3CCD with on chip lens
Picture Elements	

U version	768H × 493V 380,000 active pixels
E version	752H × 582V 440,000 active pixels

Lens Mount	1/2" Bayonet
Sensing area	6.4mm × 4.8mm (1/2" equiv.)
Encoder	

U version	R-Y, B-Y Wide-Band
E version	PAL U, V ecoder

Scanning system	2:1 Interlaced,

U version	525 lines, 60 fields/sec.
E version	625 lines, 50 fields/sec.

	U version	E version
Horiz frequency	15.734 kHz	15.625 kHz
Vertical frequency	59.94 kHz	50 Hz

Synchronization	External, Internal
Color filter	1. 3200 Kelvin (neutral) 2. 5600 K 3. 5600 K + 1/16ND
Sensitivity	F8 at 2000 lux, 0dB gain
Minimum Standard Illumination	7.5 lux with F1.4, +18 dB gain
LOLUX Minimum Illumination	2 lux with F1.4, +30 dB gain
Signal to Noise Ratio (Typical)	

U version	62 dB
E version	60 dB

Resolution	
Y channel	750 Horizontal Lines
RGB channels	540 Horizontal Lines
Registration	0.05% or less (Without lens distortion)
Geometric Distortion	Below measurable level
Color Bars	

U version	SMPTE type
E version	Full Field

Gain Boost	0,6,9,12,18,Variable gain in ALC
Shutter Speeds	1/60*, 1/100*, 1/250, 1/500, 1/1000, 1/2000, Variable Shutter in ALC (*1/50, 1/120 for E version)
Variable Scan	1/60.2 - 1/1966.7, 256STEPS

U version	1/60.1 – 1/2084.6, 255 STEPS
E version	1/50.1 – 1/2067.8, 305 STEPS

OUTPUTS

Composite	BNC, 26Pin 1 Vp-p/75 Ohm
Y/C	7 Pin, 26 Pin Y: 1 Vp-p/75 Ohm (with sync) C:

U version	0.286 Vp-p/75 Ohm
E version	0.3 Vp-p/75 Ohm

Component	26 Pin Y: 1 Vp-p/75 Ohm R-Y, B-Y:

	MII position	BETACAM position
U version	0.486 Vp-p	0.7 Vp-p
E version	0.525 Vp-p	0.525 Vp-p

Impedance = 75 Ohm

RGB	26 Pin 0.7Vp-p/75 Ohm
Audio	26 pin -60dBm/-20dBm selectable 600 Ohm balanced

INPUTS

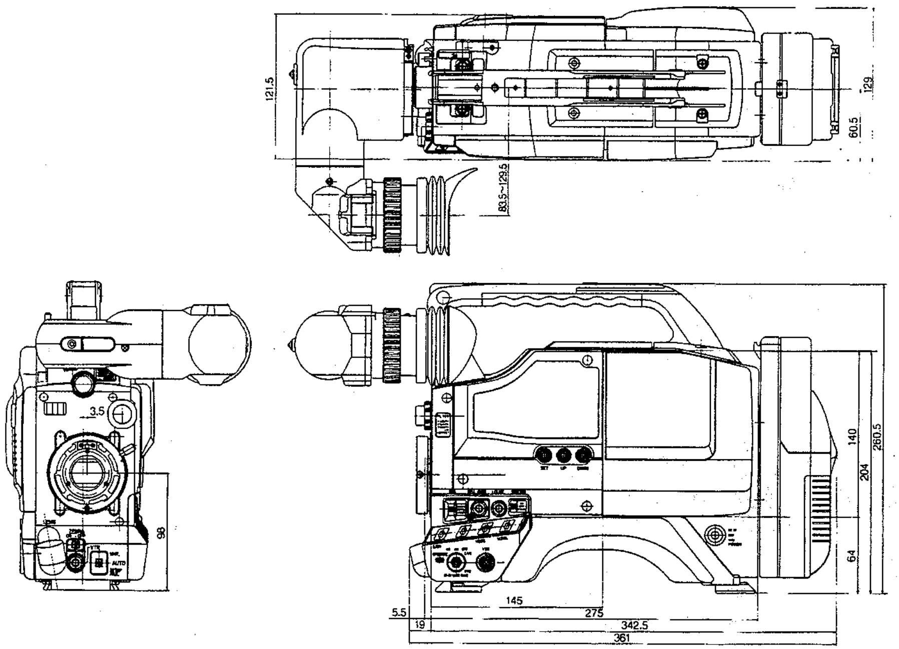
Genlock	BNC, 26 pin VBS: 1 Vp-p/75 Ohm BB:

U version	0.43 Vp-p 75 Ohm
E version	0.45 Vp-p 75 Ohm

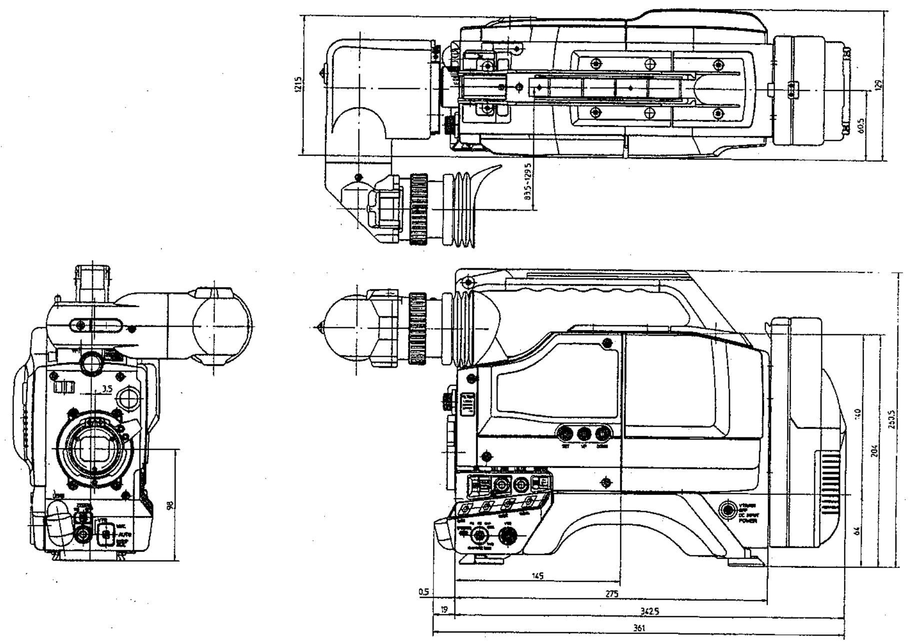
Return Video	26 Pin, 50 pin docked VBS 1 Vp-p/75 Ohm
Audio	Mic level JVC 6pin, XLR JVC 6pin: -52dBm Unbalanced 9V power, Stereo/Mono XLR: -60dBm (Balanced)
Voltage	12V DC
Power (Typical)	12.4 Watts with camera adapter, Viewfinder. 11.9 Watts with viewfinder only. 9.6 Watts without adapter, Viewfinder.
Temperature Range	–10 to +45 degrees C, 14 to 104 degress F
Weight	3.8 Kg with camera adapter and Viewfinder

7.2 DIMENSIONS [Unit: mm]

- KY-27 with KA-27 Camera Adapter and VF-P115 Viewfinder.



- KY-19 with KA-27 Camera Adapter and VF-P115 Viewfinder.


121.5
835-129.5
130
129
60.5
35
98
110
204
253.5
84
145
0.5
275
19
342.5
361

7.3 ACCESSORIES

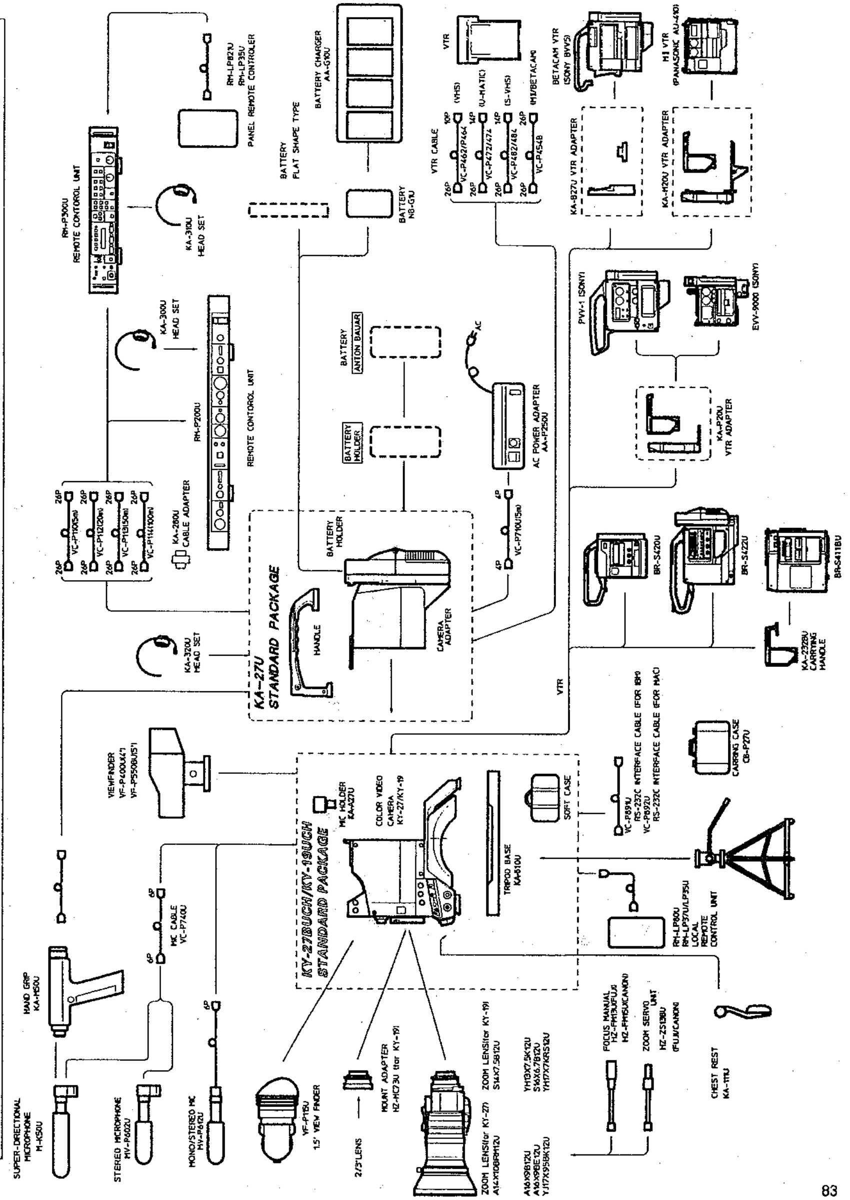
KY-27CUCH/19UCH Standard Accessories

MIC holder	: KA-A27
Tripod base	: KA-510
Soft case	

Optional Accessories

Electronic viewfinder	: VF-P115
Studio viewfinder	: VF-P400/P550B
Power zoom lens	: Fujinon S14 x 7.5 B12 (KY-19) Fujinon A14 x 10 BRM12 (KY-27)
Mounting adapter (convert 2/3" lens to 1/2" lens mount)	: HZ-MC73U
AC power adapter	: AA-P250
DC battery pack	: NB-G1 (12 V, 2.2 AH)
Chest rest	: KA-111
Camera adapter	: KA-27
Carriage case	: CB-P27
VTR adapter	
for MII	: KA-M20
for BETACAM SP	: KA-B27
for BETACAM PRO and HI-8	: KA-P20

7.4 ACCESSORIES SYSTEM CHART


RM-P300U REMOTE CONTOROL UNIT
KA-310U HEAD SET
RM-LP821U
RM-LP35U
PANEL REMOTE CONTROLER
BATTERY FLAT SHAPE TYPE
BATTERY CHARGER AA-G10U
BATTERY NB-G1U
VTR CABLE
VC-P462/P464 (VHS)
VC-P472/474 (U-MATIC)
VC-P482/484 (S-VHS)
VC-P454B (MII/BETACAM)
VTR
BETACAM VTR (SONY BVV5)
HI VTR (PANASONIC AU-410)
KA-B27U VTR ADAPTER
KA-M20U VTR ADAPTER
PVV-1 (SONY)
EVV-9000 (SONY)
KA-P20U VTR ADAPTER
BR-S420U
BR-S422U
BR-S411BU
KA-232U CARRYING HANDLE
KA-300U HEAD SET
RM-P200U
REMOTE CONTOROL UNIT
KA-280U CABLE ADAPTER
BATTERY ANTON BAUAR
BATTERY HOLDER
AC POWER ADAPTER AA-P250U
VC-P710U(5m)
KA-27U STANDARD PACKAGE
HANDLE
CAMERA ADAPTER
KA-320U HEAD SET
VIEWFINDER VF-P400U(7") VF-P550BU(5")
KY-27BUCH/KY-19UCH STANDARD PACKAGE
MIC HOLDER KA-A27U
COLOR VIDEO CAMERA KY-27/KY-19
TRIPOD BASE KA-510
SOFT CASE
VC-P891U RS-232C INTERFACE CABLE (FOR IBM)
VC-P892U RS-232C INTERFACE CABLE (FOR MAC)
CARRYING CASE CB-P27U
RM-LP80U RM-LP37U/LP35U LOCAL REMOTE CONTROL UNIT
MIC CABLE VC-P740U
HAND GRIP KA-H50U
SUPER-DIRECTIONAL MICROPHONE
STEREO MICROPHONE
MONO/STEREO MIC
VF-P115U 1.5" VIEW FINDER
2/3" LENS
MOUNT ADAPTER HZ-MC73U (for KY-19)
ZOOM LENS(for KY-27) A14x10BRM12U
ZOOM LENS(for KY-19) S14x7.5B12U
FOCUS MANUAL
ZOOM SERVO UNIT
CHEST REST KA-111U

SECTION 1
DIFFERENCES BETWEEN KY-27C AND KY-27B/KY-27

1.1 DIFFERENCES IN THE SPECIFICATIONS

	KY-27C	KY-27B	KY-27
Resolution (TV line)	800 (U/E)	750 (U/E)	750 (U/E)
LOLUX minimum illumination (lx)	1 (U)	1.5 (U)	2 (U)
	1 (E)	2 (E)	2 (E)
LOLUX maximum gain up (dB)	33 (U/E)	30 (U/E)	30 (U/E)
Sensitivity	F9, 2000 lx	F9, 2000 lx	F8, 2000 lx
Picture elements	768 (H) × 493 (V) (U) 754 (H) × 581 (V) (E)	728 (H) × 493 (V) (U) 728 (H) × 581 (V) (E)	728 (H) × 493 (V) (U) 728 (H) × 581 (V) (E)

1.2 DIFFERENCES IN THE P.C. BOARD

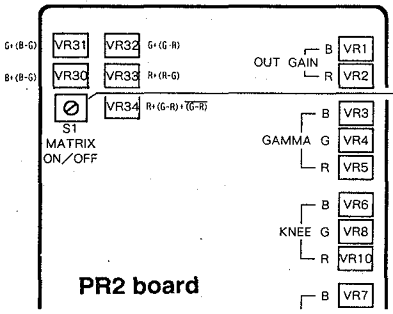
BOARD	KY-27C	KY-27B	KY-27
IS BOARD	H driver include	No H driver	No H driver
DR1, DR2 BOARD	380,000 pixels CCD (U) 440,000 pixels CCD)E) Drive circuit added +9V input line	360,000 pixels CCD (U) 430,000 pixels CCD (E) Drive circuit No input of the +9V line	360,000 pixels CCD (U) 430,000 pixels CCD (E) Drive circuit No input of the +9V line
MT BOARD	CN19 7 PIN +9V output function	CN19 7 PIN function CS3 (chip select of the shutter data)	CN19 7 PIN function CS3 (chip select of the shutter data)
CP1 BOARD	Changed the ROM data of the electric shutter		
PR1 BOARD	LOLUX maximum gain up is 33 dB	LOLUX maximum gain up is 30 dB	LOLUX maximum gain up is 30 dB

1.3 DIFFERENCES IN THE MECHANISM

	KY-27C	KY-27B	KY-27
Optional block	380,000 pixels CCD (U) 440,000 pixels CCD (E)	360,000 pixels CCD (U) 430,000 pixels CCD (E)	360,000 pixels CCD (U) 430,000 pixels CCD (E)
Left side cover logo	KY-27C	KY-27B	KY-27
Radiation filters	Add	None	None
Instructions	KY-19/KY-27C	KY-19/KY-27B	KY-19/KY-27
	SC96724 (for U ver.)	SC96645-001 (for U ver.)	SC96645-001 (for U ver.)
	SC96725 (for E ver.)	SC96646-□□1 (for E ver.)	SC96646-□□1 (for E ver.)

SECTION 2
SERVICE CAUTIONS AND DISASSEMBLY

Notes:
- For disassembling methods and P.C. board arrangements of the KY-27C, refer to the service manuals (No. 60061 and 60072) for the KY-27 since the two models are the same in those points.
- In regard of the internal switch on the PR2 board, the KY-27C has the switch layout different from the KY-27 as shown below.


G+(B-G)
VR31
VR32
G+(G-R)
B+(B-G)
VR30
VR33
R+(R-G)
VR34
R+(G-R)+$\overline{(G-R)}$
S1
MATRIX
ON／OFF
OUT GAIN
B
VR1
R
VR2
GAMMA
B
VR3
G
VR4
R
VR5
KNEE
B
VR6
G
VR8
R
VR10
B
VR7
PR2 board

Symbol No.	Switch Name	Initial Setting at shipment
S1 (PR2 board)	MATRIX switch	NTSC ⊘ ON PAL ⦸ OFF

To turn on/off the color matrix function.

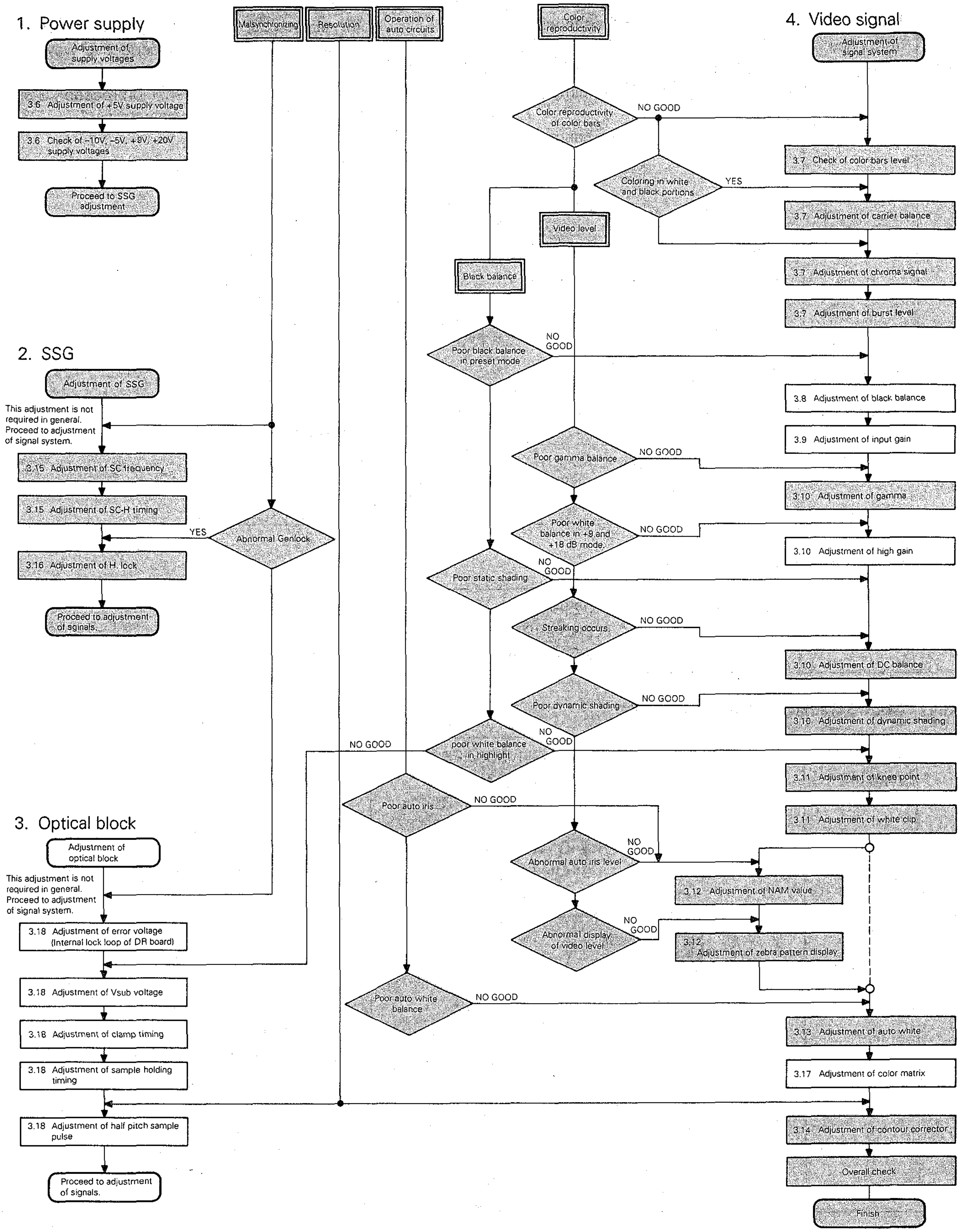
⊘ ON : Activates color matrix masking.

⦸ OFF: Inactivates color matrix masking.

SECTION 3
ADJUSTMENT PROCEDURE

Note: • Since adjustment methods of the items in the gray box (▨) are the same as for the KY-27, refer to the service manuals (No. 60061 and No. 60072) for the KY-27 for those adjustments.

3.1 FLOWCHART OF ELECTRICAL ADJUSTMENTS


1. Power supply
Adjustment of supply voltages
3.6 Adjustment of +5V supply voltage
3.6 Check of −10V, −5V, +8V, +20V supply voltages
Proceed to SSG adjustment
Malsynchronizing
Resolution
Operation of auto circuits
Color reproductivity
4. Video signal
Adjustment of signal system
Color reproductivity of color bars
NO GOOD
3.7 Check of color bars level
Coloring in white and black portions
YES
3.7 Adjustment of carrier balance
Video level
Black balance
3.7 Adjustment of chroma signal
3.7 Adjustment of burst level
2. SSG
Adjustment of SSG
This adjustment is not required in general. Proceed to adjustment of signal system.
Poor black balance in preset mode
NO GOOD
3.8 Adjustment of black balance
3.9 Adjustment of input gain
3.15 Adjustment of SC frequency
Poor gamma balance
NO GOOD
3.15 Adjustment of SC-H timing
3.10 Adjustment of gamma
YES
Abnormal Genlock
Poor white balance in +9 and +18 dB mode.
NO GOOD
3.16 Adjustment of H. lock
3.10 Adjustment of high gain
NO GOOD
Poor static shading
Proceed to adjustment of signals.
Streaking occurs.
NO GOOD
3.10 Adjustment of DC balance
Poor dynamic shading
NO GOOD
3.10 Adjustment of dynamic shading
NO GOOD
poor white balance in highlight
NO GOOD
3.11 Adjustment of knee point
Poor auto iris
NO GOOD
3. Optical block
3.11 Adjustment of white clip
Adjustment of optical block
NO GOOD
Abnormal auto iris level
3.12 Adjustment of NAM value
This adjustment is not required in general. Proceed to adjustment of signal system.
NO GOOD
Abnormal display of video level
3.12 Adjustment of zebra pattern display
3.18 Adjustment of error voltage (Internal lock loop of DR board)
3.18 Adjustment of Vsub voltage
Poor auto white balance
NO GOOD
3.13 Adjustment of auto white
3.18 Adjustment of clamp timing
3.18 Adjustment of sample holding timing
3.17 Adjustment of color matrix
3.18 Adjustment of half pitch sample pulse
3.14 Adjustment of contour corrector
Overall check
Proceed to adjustment of signals.
Finish

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (Ⓣ) Adjustment level (☆)	Adjustment procedure

<ADDITIONAL ADJUSTMENT>

3.8 ADJUSTMENT OF BLACK BALANCE

1-1	Trap frequency adjustment	• Oscilloscope (H-rate, 10 : 1) • Lens: Capped	• B channel ◎ TP1 [PR2] Ⓣ B-TRAP (VC5) [PR1] ☆ Minimum clock components • G channel ◎ TP2 [PR2] Ⓣ G-TRAP (VC6) [PR1] ☆ Minimum clock components • R channel ◎ TP3 [PR2] Ⓣ R-TRAP (VC7) [PR1] ☆ Minimum clock components	1) Adjust VC5, VC6 and VC7 to minimize clock pulse components of respective waveforms of B, G and R channels. **Note:** This adjustment should precede "G channel black balance adjustment".

<CHANGE ADJUSTMENT>

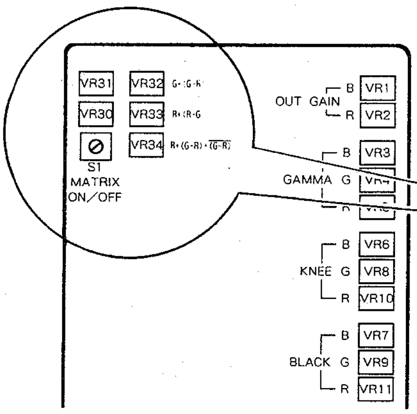
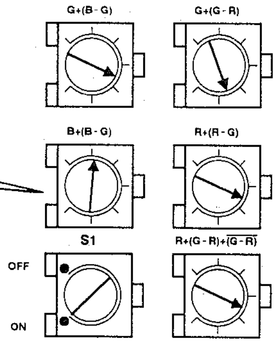
3.9 ADJUSTMENT OF INPUT GAIN (Setting of input signal level)

2	Iris setting		◎ TP2 [PR1] Ⓣ LENS IRIS ☆ 0.75 Vp-p ⬅	

3.10 ADJUSTMENT OF VIDEO LEVEL

3	High gain adjustment		◎ TP2 [PR1] Ⓣ LENS IRIS ☆ 0.25 Vp-p ⬅	

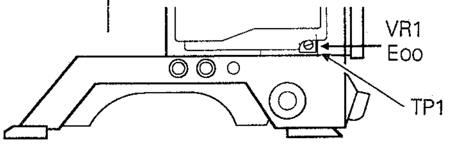
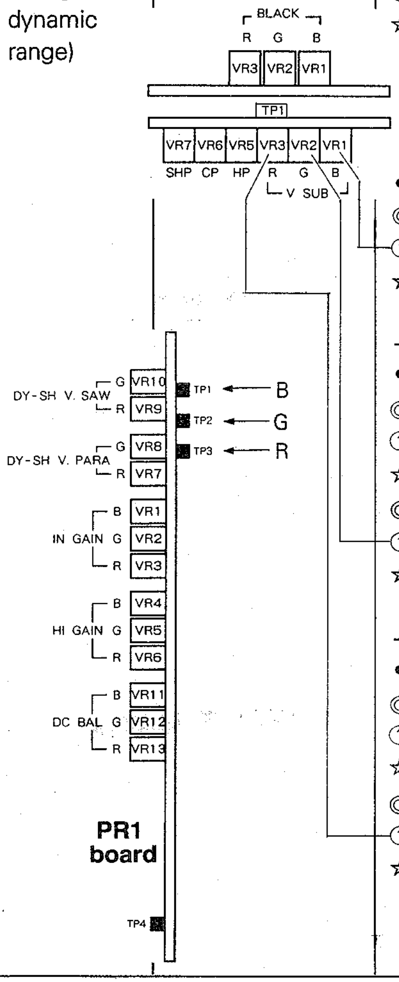
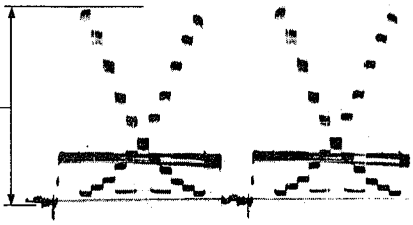
3.17 ADJUSTMENT OF COLOR MATRIX

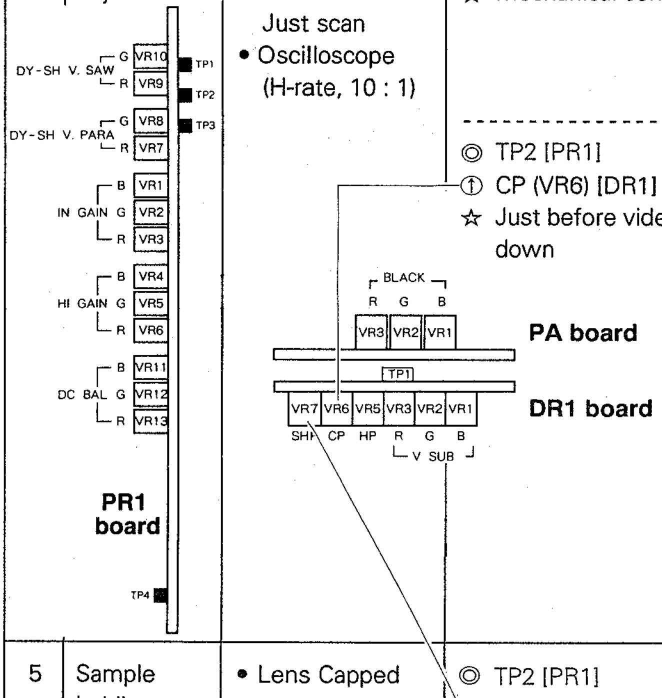
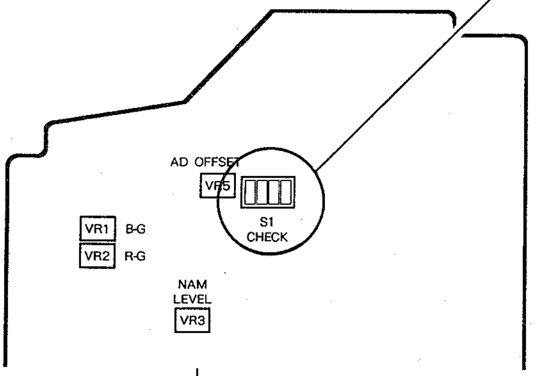
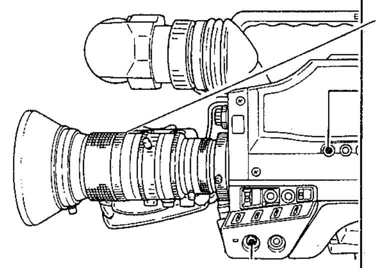
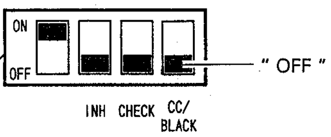
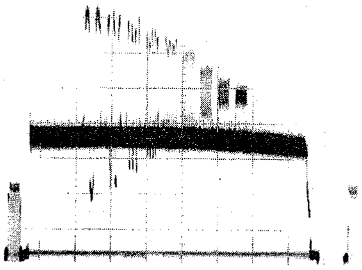
1	Matrix adjustment		Ⓣ B + (B - G) (VR30) [PR2] Ⓣ G + (B - G) (VR31) [PR2] Ⓣ G + (G - R) (VR32) [PR2] Ⓣ R + (R - G) (VR33) [PR2] Ⓣ R + (G - R) + $\overline{(G-R)}$ (VR34) [PR2]  VR31 VR32 G+(G-R) VR30 VR33 R+(R-G) VR34 R+(G-R)+(G-R) S1 MATRIX ON/OFF OUT GAIN B VR1 R VR2 GAMMA B VR3 G VR4 R VR5 KNEE B VR6 G VR8 R VR10 BLACK B VR7 G VR9 R VR11 **PR2 board**	1) As the standard, set respective VRs as shown below.  G+(B-G) G+(G-R) B+(B-G) R+(R-G) S1 R+(G-R)+(G-R) OFF ON ON : U ver. OFF : E ver.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (①) Adjustment level (☆)	Adjustment procedure

3.18 ADJUSTMENT OF CCD DRIVER AND TIMING GENERATOR

Note:
- This adjustment is required when the optical block assembly is replaced.
- Accordingly, the following procedure is just a reference for the case the VRs concerned are erroneously disturbed.

1	Preparation			1) Confirm that all settings of the camera are in the normal conditions (see page 3-3).
2	Error voltage adjustment	• Digitl voltmeter	◎ TP1 [DR2] ① Eoo (VR1) [DR2] ☆ +2.5 V DC 	1) Adjust the voltage as specified.
3	Vsub voltage adjustment (relating to blooming suppression voltage and dynamic range)	• Gray scale chart ↓ Just scan • Oscilloscope (H-rate, 10 : 1)  BLACK R G B VR3 VR2 VR1 PA board TP1 VR7 VR6 VR5 VR3 VR2 VR1 SHP CP HP R G B V SUB DR1 board DY-SH V. SAW G VR10 R VR9 TP1 ← B TP2 ← G TP3 ← R DY-SH V. PARA G VR8 R VR7 IN GAIN B VR1 G VR2 R VR3 HI GAIN B VR4 G VR5 R VR6 DC BAL B VR11 G VR12 R VR13 PR1 board TP4	① G V SUB (VR2) [DR1] B V SUB (VR1) [DR1] R V SUB (VR3) [DR1] ☆ Full ounterclockwise position (↺) ◎ TP2 [PR1] ① Lens iris ☆ 3 Vp-p • G channel ◎ TP2 [PR1] ① G V SUB (VR2) [DR1] ☆ Just before clipping of white level - - - - - - - - - - - - - - - - • B channel ◎ TP1 [PR1] ① LENS IRIS ☆ 3 Vp-p ◎ TP1 [PR1] ① B V SUB (VR1) [DR1] ☆ Just before clipping of white level - - - - - - - - - - - - - - - - • R channel ◎ TP3 [PR1] ① LENS IRIS ☆ 3 Vp-p ◎ TP3 [PR1] ① R V SUB (VR3) [DR1] ☆ Just before clipping of white level	1) Turn the VR full counterclockwise (↺) to eliminate bloom-ing suppression voltage. 2) Adjust the white peak of the gray scale chart to have the specified level.  3) Adjust the G. V SUB VR to the position just before the white level of the gray scale chart is clipped. - - - - - - - - - - - - - - - - 4) Adjust the respective VRs to the position just before the white level of the gray scale chart is clipped.

No.	Item	Measuring instruments & Input signals	Measuring point (◎) Adjustment parts (ⓣ) Adjustment level (☆)	Adjustment procedure
4	Clamp timing adjustment  DY-SH V. SAW G VR10 R VR9 DY-SH V. PARA G VR8 R VR7 IN GAIN B VR1 G VR2 R VR3 HI GAIN B VR4 G VR5 R VR6 DC BAL B VR11 G VR12 R VR13 TP1 TP2 TP3 TP4 PR1 board BLACK R G B VR3 VR2 VR1 PA board TP1 VR7 VR6 VR5 VR3 VR2 VR1 SHP CP HP R G B V SUB DR1 board	• Gray scale chart ↓ Just scan • Oscilloscope (H-rate, 10 : 1)	◎ SHP (VR7) [DR1] ☆ Mechanical center position --- ◎ TP2 [PR1] ⓣ CP (VR6) [DR1] ☆ Just before video level goes down	1) Set the SHP VR to the mechanical center position. 2) Turn the CP VR fully counterclockwise. 3) Turn the CP VR clockwise and set it to the point just before video signal goes down in the level.
5	Sample holding timing adjustment	• Lens Capped • Oscilloscope (H-rate, 10: 1)	◎ TP2 [PR1] ⓣ SHP (VR7) [DR1] ☆ Center of a range in which signal level is even	4) While observing the signal level at the measuring point, set the SHP VR to a position corresponding to the center of a range in which the signal level is evenly maintained when the VR is turned clockwise and counterclockwise.
6	Half pitch sampling timing adjustment	• In-megacycle ↓ Just scan • Oscilloscope (H-rate, 10 : 1)  AD OFFSET VR5 S1 CHECK VR1 B-G VR2 R-G NAM LEVEL VR3	 ◎ VIDEO OUTPUT (with 75 Ω terminator) ⓣ HP (VR5) [DR1] ☆ Maximum amplitude	• Set the lens iris to "A" (auto) position. • Set the CONTOUR ON/OFF switch on the CP1 board to "OFF".  ON OFF " OFF " INH CHECK CC/BLACK 1) Shoot the in-megacycle chart. 2) Observe the frequency response while adjusting the waveform so that its high frequency level becomes maximum.  3) Return the CONTOUR ON/OFF switch to "ON" position.

SECTION 4
CHARTS AND DIAGRAMS

■ SCHEMATIC DIAGRAM NOTES

- **Schematic safety precaution**

⚠ Parts are safety related parts.
When replacing them, be sure to use the specified parts.

Voltage and waveform measurements.

Voltage: Measured with digital voltmeter in DC range; iris closed.

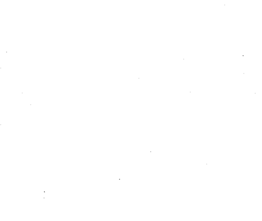
Waveform: Grey scale illuminated at more than 4000 lux at 3200 K lighting.

- Terminal logic

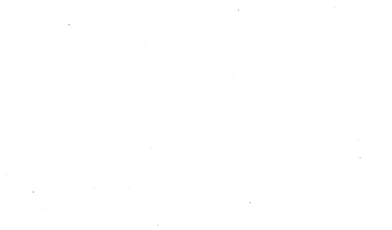
Top bar of terminal name show input or output logic.
Top bar shows, the control circuit become active at negative (low) logic input for example.

- Digital transistors

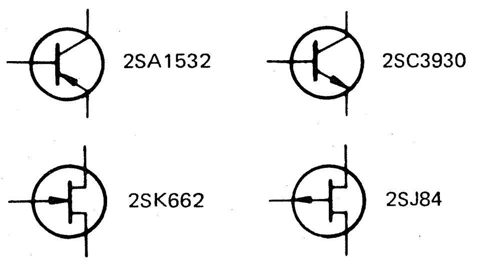
DTC124EU



DTA124EU



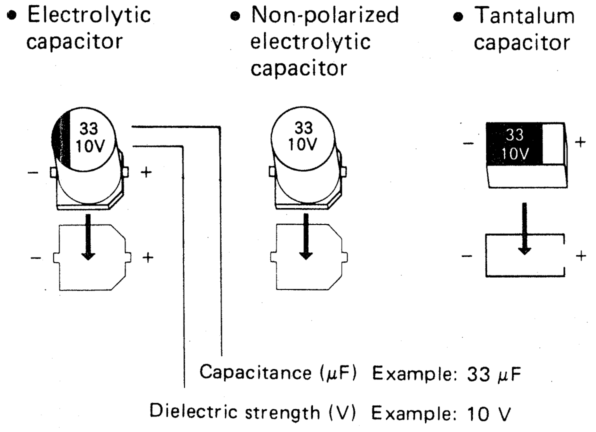
- Unless otherwise specified transistors and F.E.T.s are:


2SA1532
2SC3930
2SK662
2SJ84

- Definistion of the (A) and the (B) or circuit boards diagrams
  (A) : Side on which discrete parts are assembled
  (B) : Side on which only chip parts are assembled.

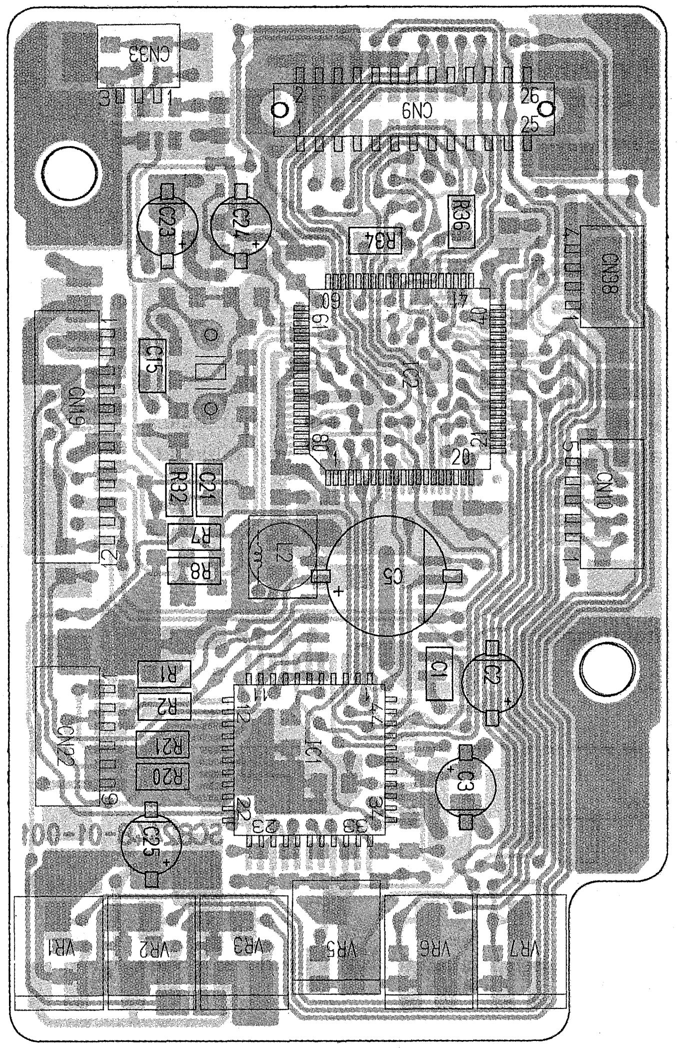
■ REPLACING SUBMINIATURE "CHIP" PARTS

- Some resistors, shorting jumpers (0 Ω resistance), ceramic capacitors, transistors, and diodes are chip parts. These chip parts cannot be reused after they are once removed.
- Chip resistors used in some circuits are of high precision type having little error in resistance.
  To demonstrate the full capacity of this camera head, place an order for proper parts referring to the diagrams and parts lists in the sections 7.
- Soldering cautions:
  1) Do not apply heat for more than 3 seconds.
  2) Avoid using a rubbing stroke when soldering.
  3) Discard removed chips; do not reuse them.
  4) Supplementary cementing is not required.
  5) Use care not to scratch or otherwise damage the chips.
- Resistors and capacitors are not interchangeable with chip parts which are used in the color video cameras BY-110, KY-210, etc., because of difference in size. In case of order for parts, refer to the section 7 "ELECTRICAL PARTS LIST".
- Polarities of chip electrolytic capacitors and chip tanntalum capacitors used in this model are as illustrated below.
  Polarities indicated by silk-screen printing on P.C. boards are also shown below. When replacing such parts, make sure of polarities.

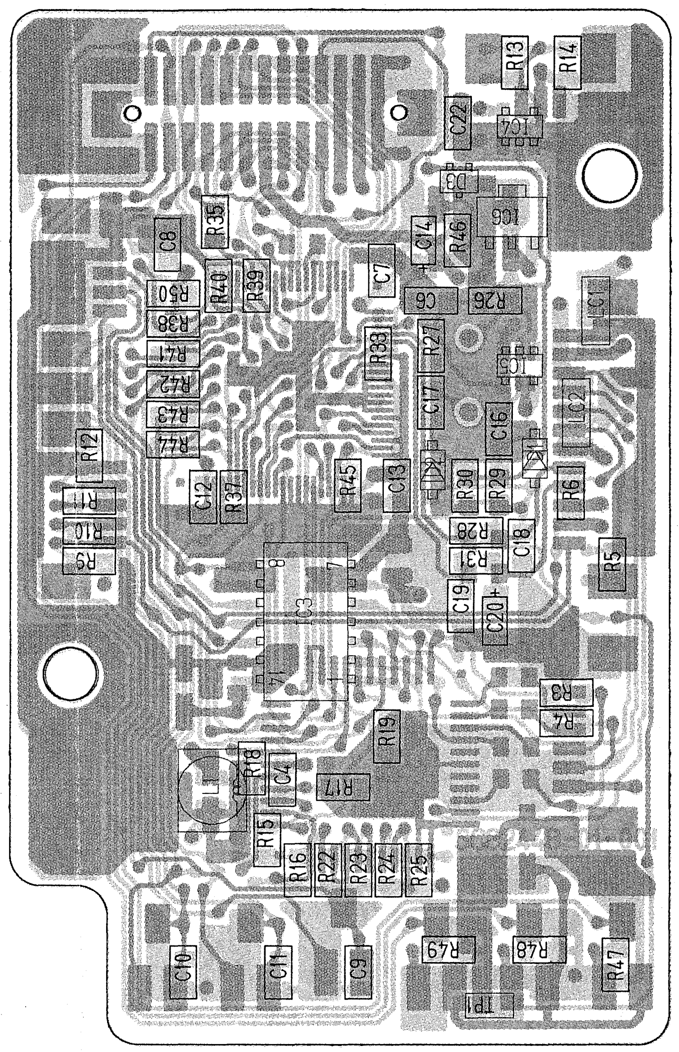

• Electrolytic capacitor
• Non-polarized electrolytic capacitor
• Tantalum capacitor
33
10V
−
+
33
10V
33
10V
−
+
−
+
−
+
Capacitance (μF) Example: 33 μF
Dielectric strength (V) Example: 10 V

4.1 DR1 CIRCUIT BOARD

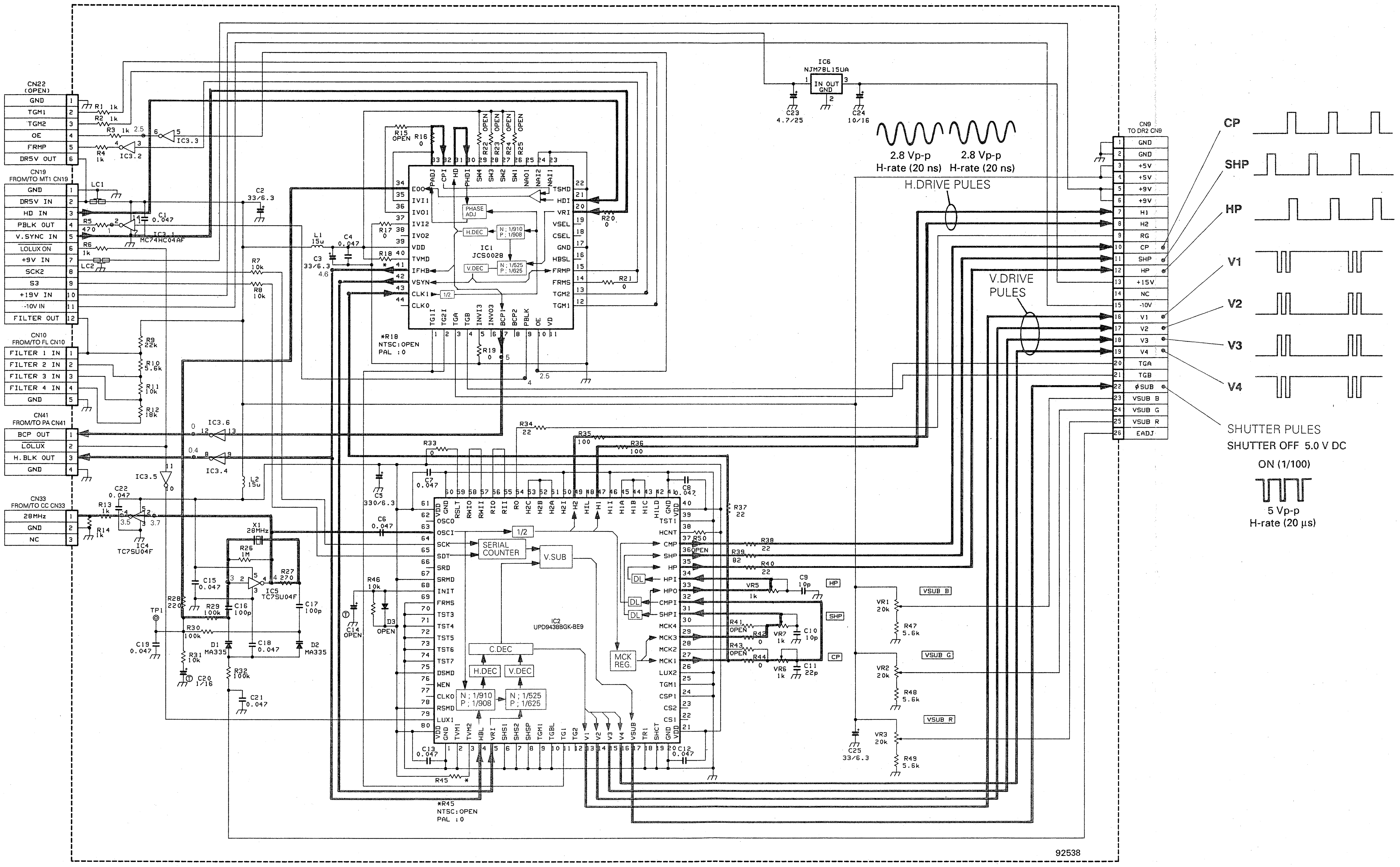
- Side [A] -


CN33
CN9
C23
C24
R34
R36
CN8
IC2
C15
CN19
R32
C21
R7
R8
L2
C5
CN10
C1
C2
R1
R2
R21
R20
CN12
IC1
C3
C25
VR1
VR2
VR3
VR5
VR6
VR7

- Side [B] -

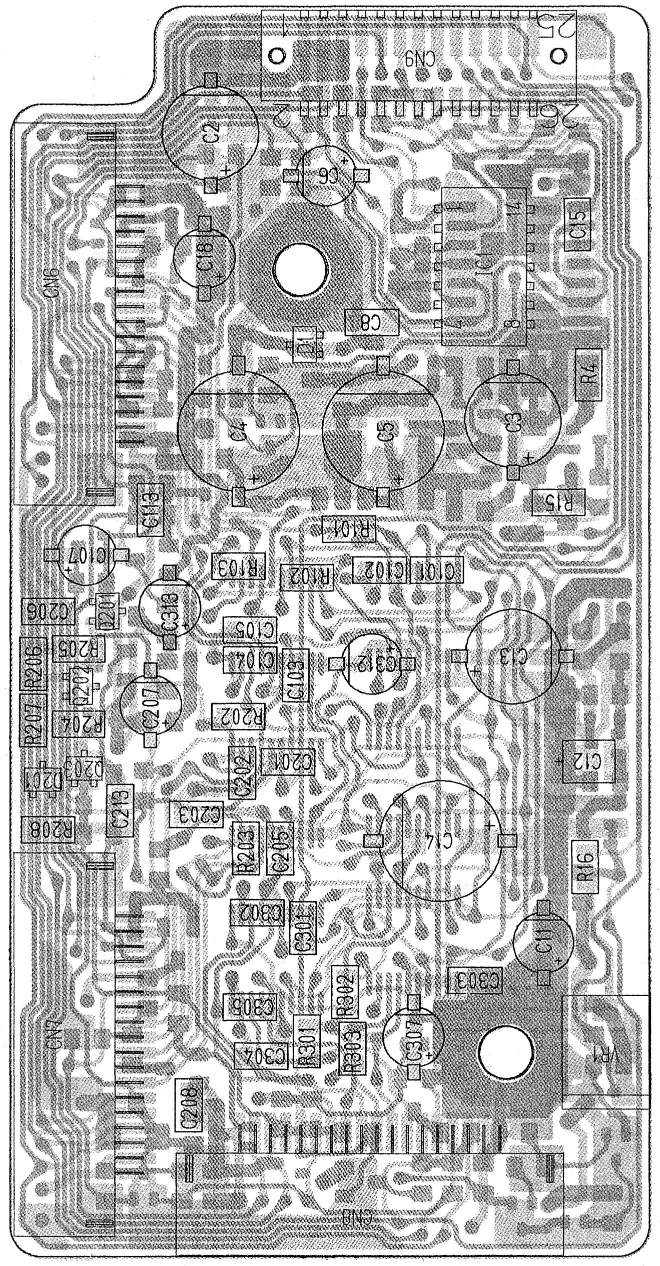

R13
R14
C22
D3
IC6
R35
C8
R40
R39
C7
R46
C6
R26
R50
R38
R41
R42
R43
R44
R33
R27
C17
IC5
C16
IC2
R12
R11
R10
R9
C12
R37
R45
C13
D1
R30
R29
R6
R28
R31
C18
R5
IC3
C19
C20
R3
R4
R19
L1
R18
C4
R17
R15
R16
R22
R23
R24
R25
C10
C11
C9
R49
R48
R47
TP1

4.2 DR1 (CCD DRiver No.1 circuit) SCHEMATIC DIAGRAM 0 5

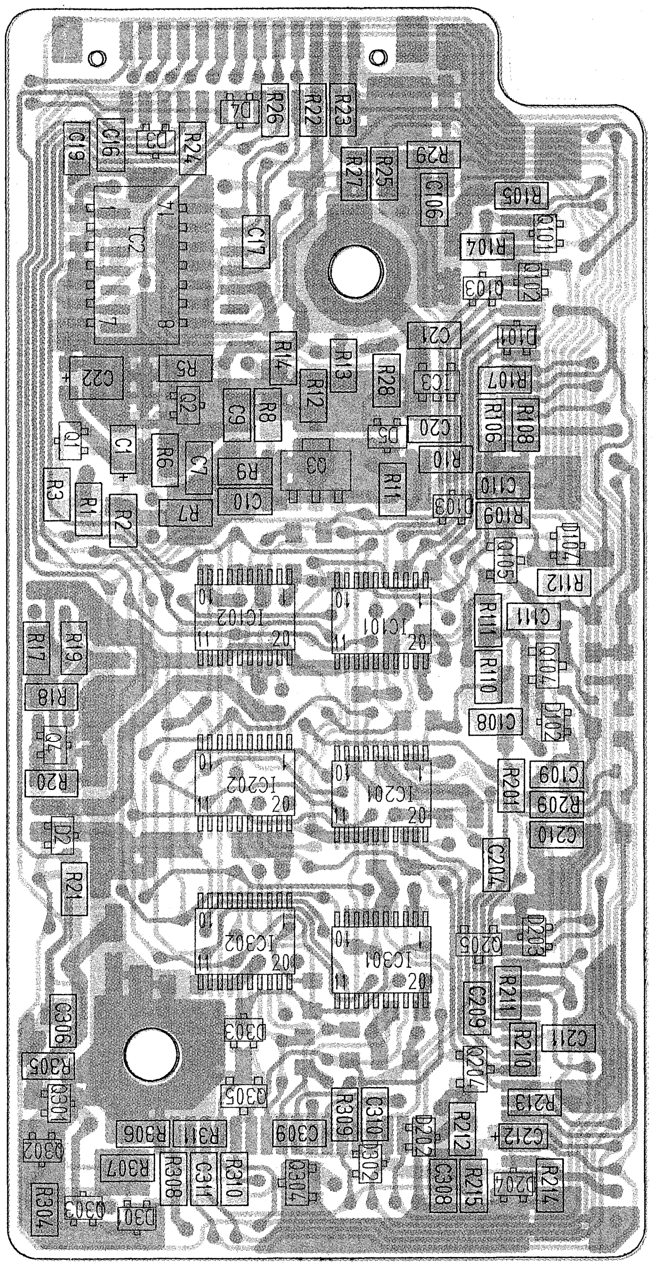

CN22 (OPEN)
GND
TGM1
TGM2
OE
FRMP
DR5V OUT
CN19 FROM/TO MT1 CN19
GND
DR5V IN
HD IN
PBLK OUT
V.SYNC IN
LOLUX ON
+9V IN
SCK2
S3
+19V IN
-10V IN
FILTER OUT
CN10 FROM/TO FL CN10
FILTER 1 IN
FILTER 2 IN
FILTER 3 IN
FILTER 4 IN
GND
CN41 FROM/TO PA CN41
BCP OUT
LOLUX
H.BLK OUT
GND
CN33 FROM/TO CC CN33
28MHz
GND
NC
IC1 JCS0028
PHASE ADJ
H.DEC
V.DEC
N ; 1/910 P ; 1/908
N ; 1/525 P ; 1/625
IC2 UPD94388GK-BE9
SERIAL COUNTER
V.SUB
C.DEC
MCK REG.
DL
IC3 MC74HC04AF
IC4 TC7SU04F
IC5 TC7SU04F
IC6 NJM78L15UA
X1 28MHz
*R18 NTSC:OPEN PAL :0
*R45 NTSC:OPEN PAL :0
CN9 TO DR2 CN9
GND
GND
+5V
+5V
+9V
+9V
H1
H2
RG
CP
SHP
HP
+15V
NC
-10V
V1
V2
V3
V4
TGA
TGB
φSUB
VSUB B
VSUB G
VSUB R
EADJ
2.8 Vp-p H-rate (20 ns)
2.8 Vp-p H-rate (20 ns)
H.DRIVE PULES
V.DRIVE PULES
CP
SHP
HP
V1
V2
V3
V4
SHUTTER PULES
SHUTTER OFF 5.0 V DC
ON (1/100)
5 Vp-p H-rate (20 µs)
92538

4.3 DR2 CIRCUIT BOARD

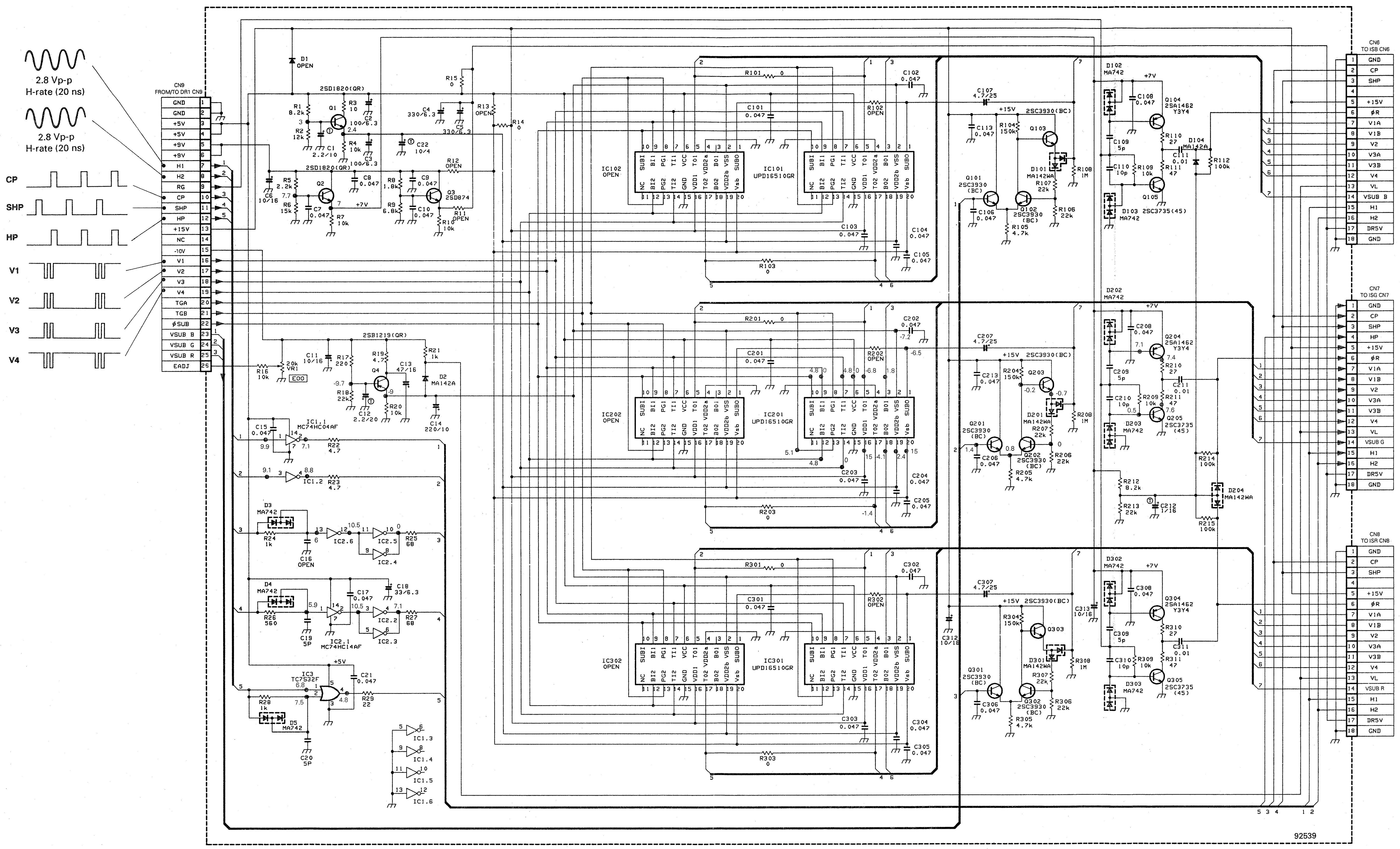
- Side [A] -


CN9
C2
C6
C18
C15
IC1
C8
C4
C5
C3
R4
R15
R101
C113
C107
R103
R102
C102
C101
C105
C104
C103
C312
C13
C310
C206
R205
R206
R202
C207
R207
R204
R202
C201
C202
C12
C213
R208
C203
R203
C205
C14
R16
C302
C301
C11
C303
R302
C305
R301
R303
C307
C304
VR1
C208
CN6
CN7
CN8

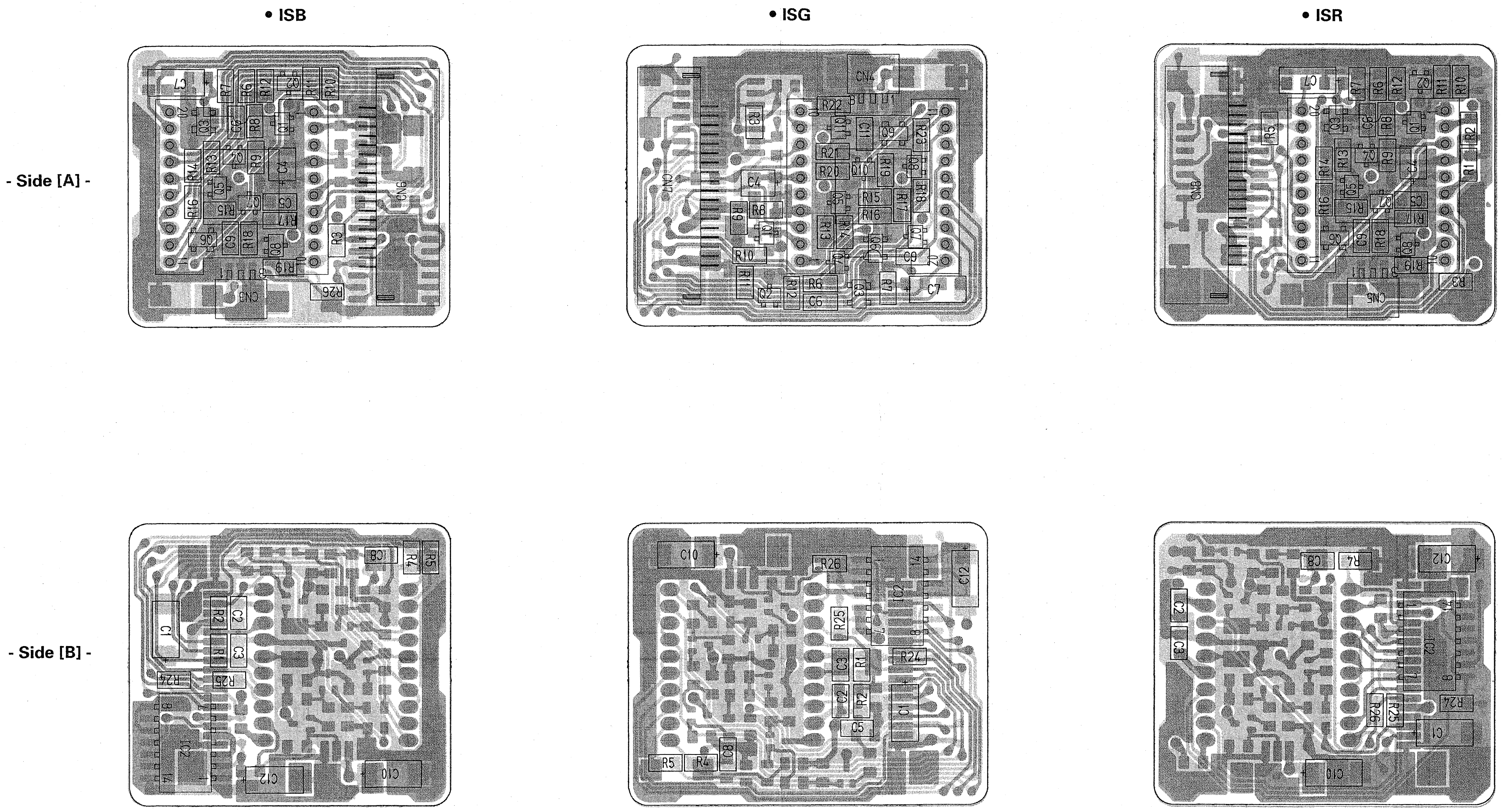
- Side [B] -


R26
R22
R23
R24
C19
C16
R27
R25
R29
C106
R105
IC2
C17
R104
C21
R14
R13
R28
C22
R5
Q2
C9
R8
R12
C1
R106
R107
R108
C20
Q1
R6
C7
R9
Q3
R10
R11
R3
R1
R2
R7
C10
C110
R109
R112
IC102
IC101
C111
R111
R110
C108
R17
R19
R18
IC202
IC201
R20
R201
C109
R209
C210
C204
R21
IC302
IC301
R211
C209
R210
C211
C306
R305
C305
R306
R311
C309
R309
C310
R213
R212
C212
R307
R308
C311
R310
C308
R215
R214
R304

4.4 DR2 (CCD DRiver No.2 circuit) SCHEMATIC DIAGRAM 06

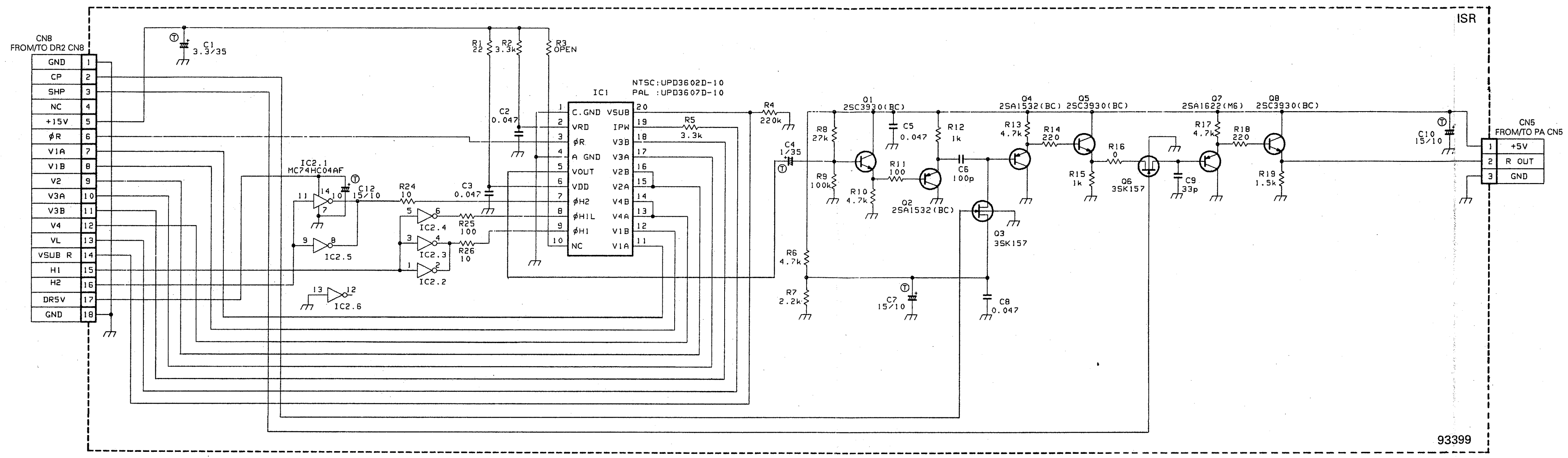

2.8 Vp-p
H-rate (20 ns)
2.8 Vp-p
H-rate (20 ns)
CP
SHP
HP
V1
V2
V3
V4
CN9
FROM/TO DR1 CN9
GND
GND
+5V
+5V
+9V
+9V
H1
H2
RG
CP
SHP
HP
+15V
NC
-10V
V1
V2
V3
V4
TGA
TGB
φSUB
VSUB B
VSUB G
VSUB R
EADJ
D1
OPEN
2SD1820(QR)
Q1
Q2
Q3
2SD874
Q4
2SB1219(QR)
D2
MA142A
VR1
20k
E00
IC1.1
MC74HC04AF
IC1.2
IC1.3
IC1.4
IC1.5
IC1.6
D3
MA742
D4
MA742
D5
MA742
IC2.1
MC74HC14AF
IC2.2
IC2.3
IC2.4
IC2.5
IC2.6
IC3
TC7S32F
+5V
+7V
IC101
UPD16510GR
IC102
OPEN
IC201
UPD16510GR
IC202
OPEN
IC301
UPD16510GR
IC302
OPEN
SUBI
BI1
PG1
TI1
VCC
TO1
VDD2a
BO1
VSS
SUBO
NC
BI2
PG2
TI2
GND
VDD1
TO2
BO2
VDD2b
Vsb
Q101
2SC3930
(BC)
Q102
2SC3930
(BC)
Q103
2SC3930(BC)
Q104
2SA1462
Y3Y4
Q105
2SC3735(45)
D101
MA142WA
D102
MA742
D103
MA742
D104
MA142A
Q201
2SC3930
(BC)
Q202
2SC3930
(BC)
Q203
Q204
2SA1462
Y3Y4
Q205
2SC3735
(45)
D201
MA142WA
D202
MA742
D203
MA742
D204
MA142WA
Q301
2SC3930
(BC)
Q302
2SC3930
(BC)
Q303
Q304
2SA1462
Y3Y4
Q305
2SC3735
(45)
D301
MA142WA
D302
MA742
D303
MA742
+15V
CN6
TO ISB CN6
CN7
TO ISG CN7
CN8
TO ISR CN8
GND
CP
SHP
HP
+15V
φR
V1A
V1B
V2
V3A
V3B
V4
VL
VSUB B
VSUB G
VSUB R
H1
H2
DR5V
GND
92539

4.5 ISR/ISG/ISB CIRCUIT BOARDS

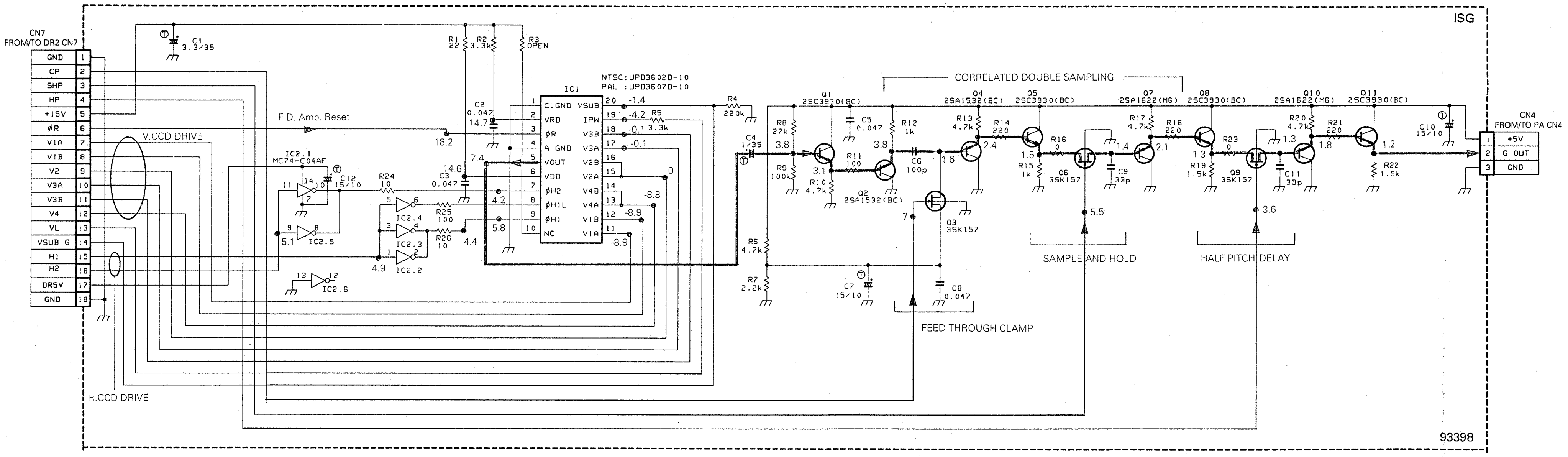

• ISB
• ISG
• ISR
- Side [A] -
- Side [B] -
CN4
CN5
CN6
CN7
CN8
C7
C12
C10
IC1
IC2

4.6 ISR/ISG/ISB (Image Sensor board) SCHEMATIC DIAGRAMS 01/02/03

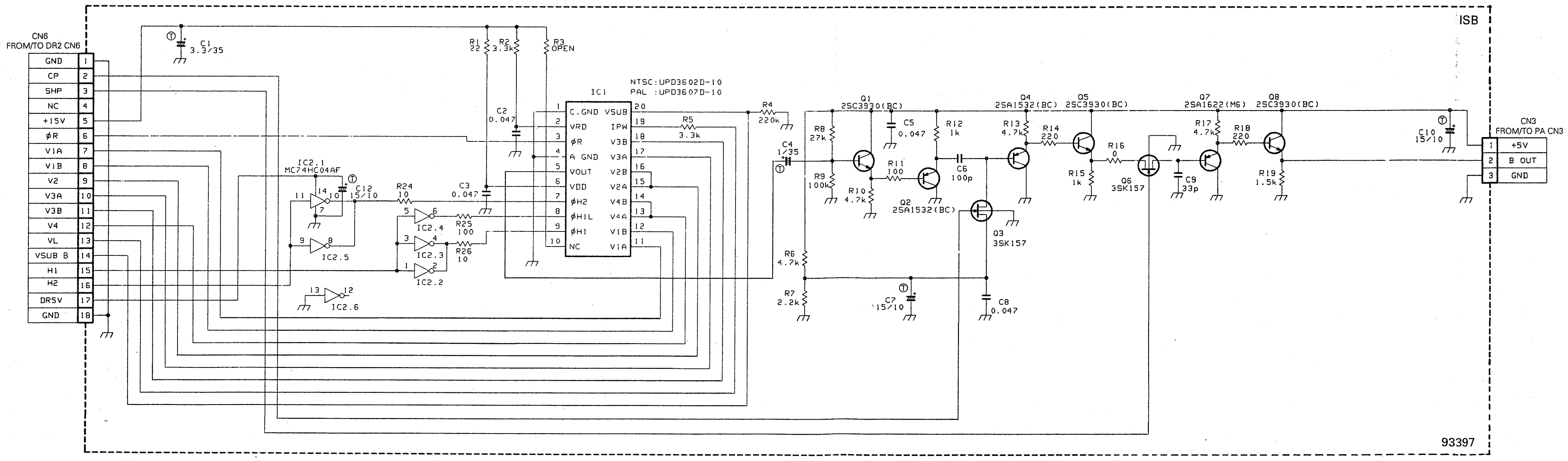
• ISR


ISR
CN8
FROM/TO DR2 CN8
GND
CP
SHP
NC
+15V
φR
V1A
V1B
V2
V3A
V3B
V4
VL
VSUB R
H1
H2
DR5V
GND
C1 3.3/35
R1 22
R2 3.3k
R3 OPEN
NTSC:UPD3602D-10
PAL :UPD3607D-10
IC1
C.GND VSUB
VRD IPW
φR V3B
A GND V3A
VOUT V2B
VDD V2A
φH2 V4B
φH1L V4A
φH1 V1B
NC V1A
C2 0.047
C3 0.047
IC2.1 MC74HC04AF
C12 15/10
R24 10
R25 100
R26 10
IC2.2
IC2.3
IC2.4
IC2.5
IC2.6
R4 220k
R5 3.3k
C4 1/35
Q1 2SC3930(BC)
Q2 2SA1532(BC)
Q3 3SK157
Q4 2SA1532(BC)
Q5 2SC3930(BC)
Q6 3SK157
Q7 2SA1622(M6)
Q8 2SC3930(BC)
R6 4.7k
R7 2.2k
R8 27k
R9 100k
R10 4.7k
R11 100
R12 1k
R13 4.7k
R14 220
R15 1k
R16 0
R17 4.7k
R18 220
R19 1.5k
C5 0.047
C6 100p
C7 15/10
C8 0.047
C9 33p
C10 15/10
CN5
FROM/TO PA CN5
+5V
R OUT
GND
93399

• ISG

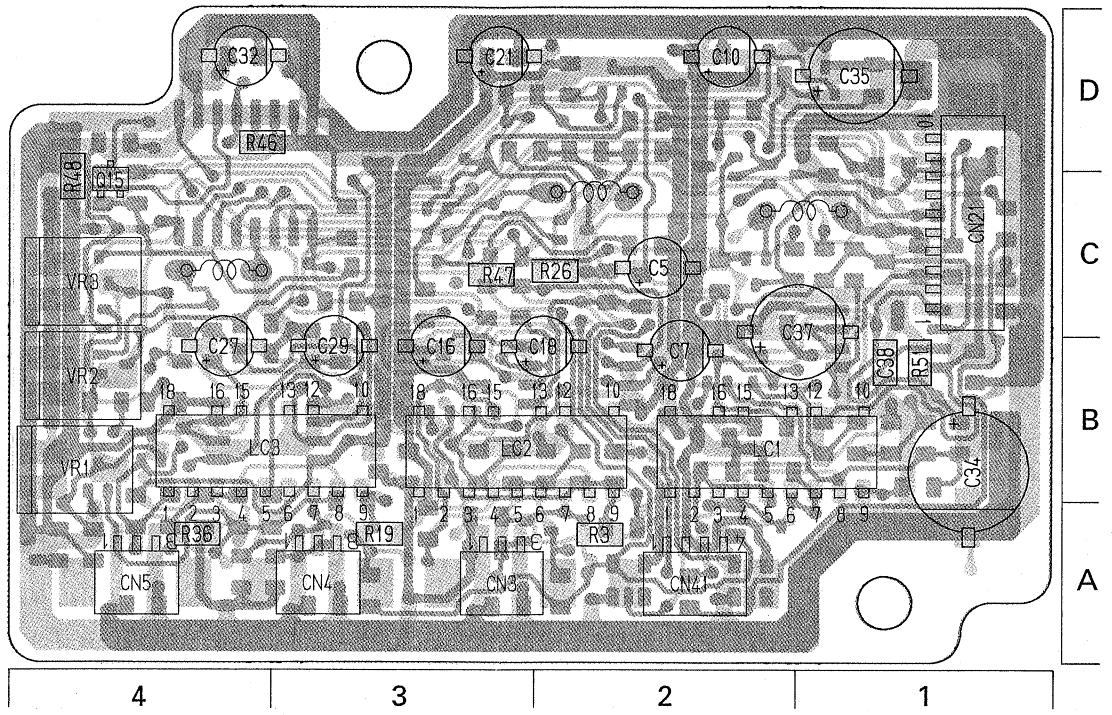

ISG
CN7
FROM/TO DR2 CN7
GND
CP
SHP
HP
+15V
φR
V1A
V1B
V2
V3A
V3B
V4
VL
VSUB G
H1
H2
DR5V
GND
V.CCD DRIVE
H.CCD DRIVE
F.D. Amp. Reset
C1 3.3/35
R1 22
R2 3.3k
R3 OPEN
NTSC:UPD3602D-10
PAL :UPD3607D-10
IC1
C2 0.047
C3 0.047
IC2.1 MC74HC04AF
C12 15/10
R24 10
R25 100
R26 10
18.2
14.7
14.6
7.4
4.2
5.8
5.1
4.9
4.4
-1.4
-4.2
-0.1
-0.1
0
-8.8
-8.9
-8.9
R4 220k
R5 3.3k
C4 1/35
CORRELATED DOUBLE SAMPLING
Q1 2SC3930(BC)
Q2 2SA1532(BC)
Q3 3SK157
Q4 2SA1532(BC)
Q5 2SC3930(BC)
Q6 3SK157
Q7 2SA1622(M6)
Q8 2SC3930(BC)
Q9 3SK157
Q10 2SA1622(M6)
Q11 2SC3930(BC)
3.8
3.1
3.8
1.6
2.4
1.5
1.4
2.1
1.3
1.3
1.8
1.2
7
5.5
3.6
R6 4.7k
R7 2.2k
R8 27k
R9 100k
R10 4.7k
R11 100
R12 1k
R13 4.7k
R14 220
R15 1k
R16 0
R17 4.7k
R18 220
R19 1.5k
R20 4.7k
R21 220
R22 1.5k
R23 0
C5 0.047
C6 100p
C7 15/10
C8 0.047
C9 33p
C10 15/10
C11 33p
SAMPLE AND HOLD
HALF PITCH DELAY
FEED THROUGH CLAMP
CN4
FROM/TO PA CN4
+5V
G OUT
GND
93398

• ISB

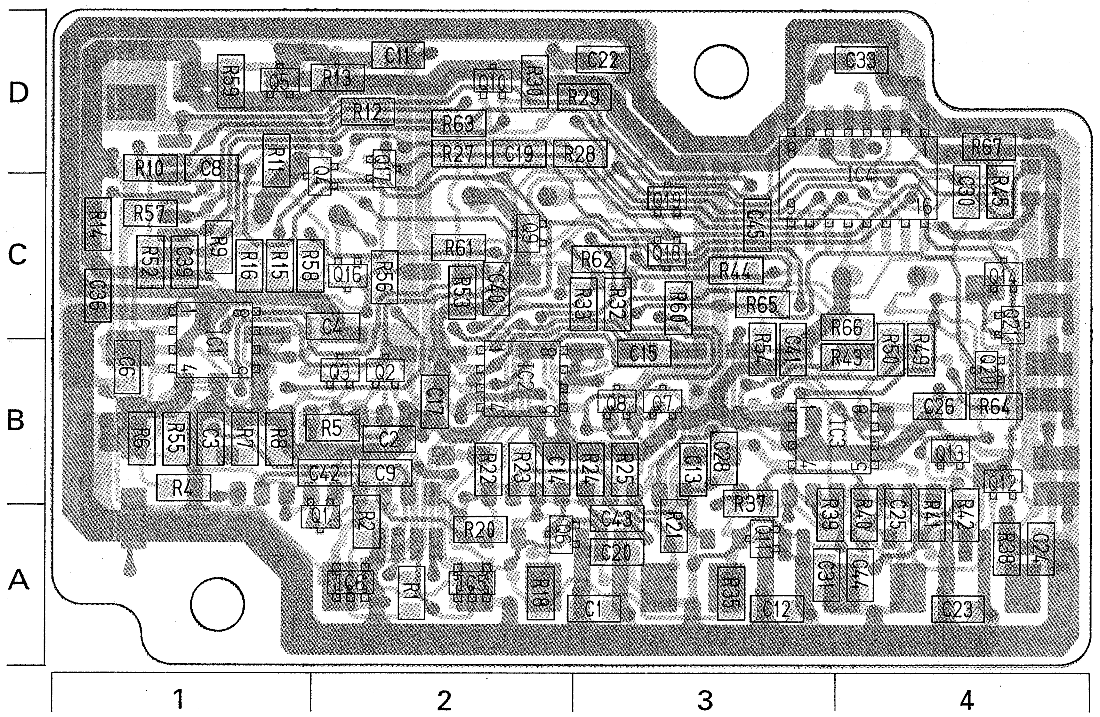

ISB
CN6
FROM/TO DR2 CN6
GND
CP
SHP
NC
+15V
φR
V1A
V1B
V2
V3A
V3B
V4
VL
VSUB B
H1
H2
DR5V
GND
C1 3.3/35
R1 22
R2 3.3k
R3 OPEN
NTSC:UPD3602D-10
PAL :UPD3607D-10
IC1
C2 0.047
C3 0.047
IC2.1 MC74HC04AF
C12 15/10
R24 10
R25 100
R26 10
IC2.2
IC2.3
IC2.4
IC2.5
IC2.6
R4 220k
R5 3.3k
C4 1/35
Q1 2SC3930(BC)
Q2 2SA1532(BC)
Q3 3SK157
Q4 2SA1532(BC)
Q5 2SC3930(BC)
Q6 3SK157
Q7 2SA1622(M6)
Q8 2SC3930(BC)
R6 4.7k
R7 2.2k
R8 27k
R9 100k
R10 4.7k
R11 100
R12 1k
R13 4.7k
R14 220
R15 1k
R16 0
R17 4.7k
R18 220
R19 1.5k
C5 0.047
C6 100p
C7 15/10
C8 0.047
C9 33p
C10 15/10
CN3
FROM/TO PA CN3
+5V
B OUT
GND
93397

4.7 PA CIRCUIT BOARD

- Side [A] -

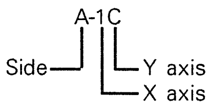

D
C
B
A
4
3
2
1
IC1
IC2
IC3
CN5
CN4
CN3
CN41
CN21
VR1
VR2
VR3

- Side [B] -


D
C
B
A
1
2
3
4
IC2
IC3
IC4

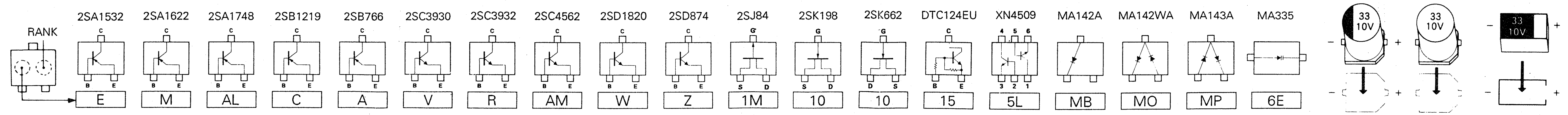
●ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.

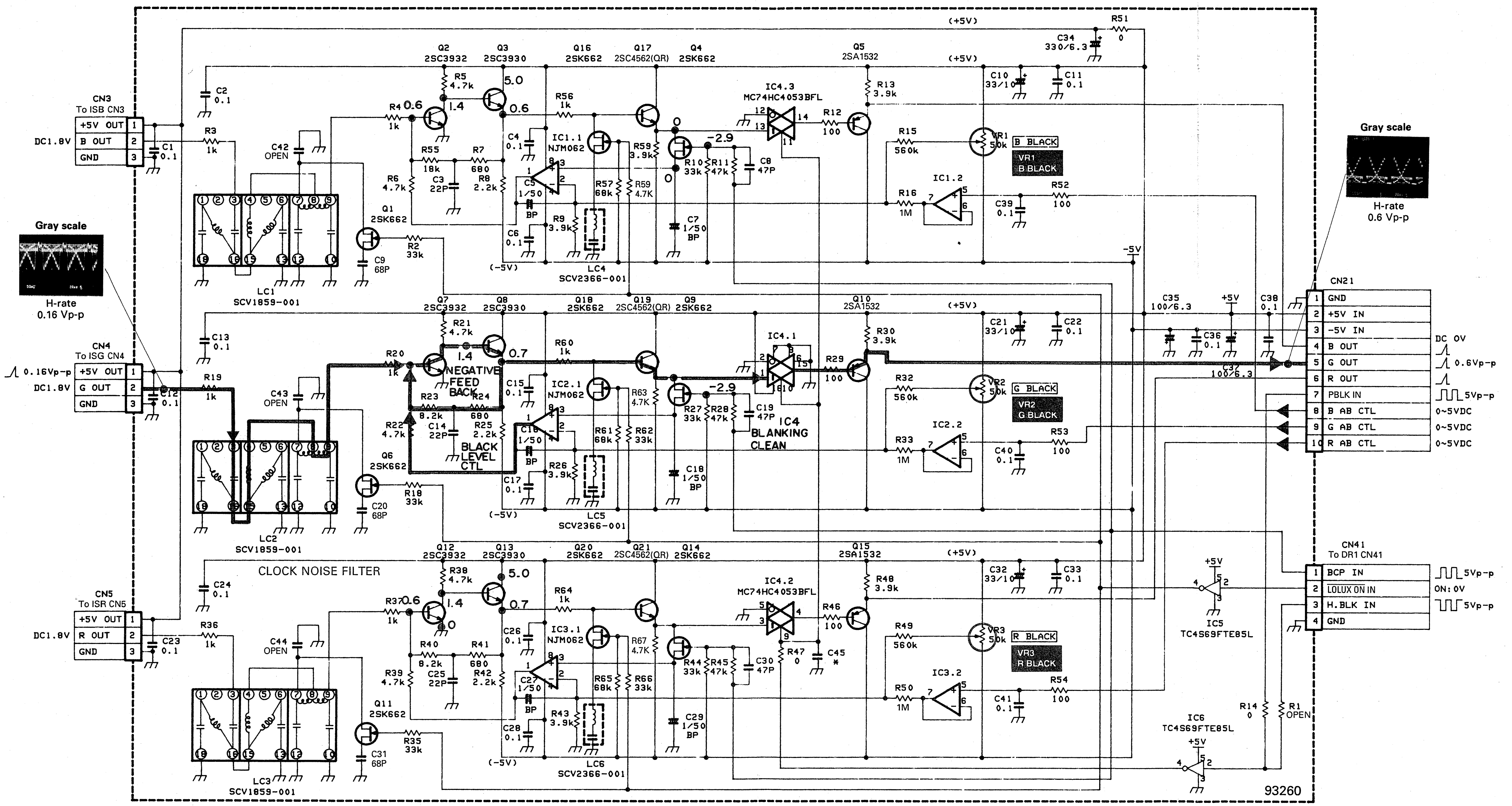

A-1C
Side
Y axis
X axis

IC1	B- 1C	R1	B- 2A	R30	B- 2D	R60	B- 3C	C16	A- 3B	C44	B- 4A
IC2	B- 2B	R2	B- 2A	R32	B- 3C	R61	B- 2C	C17	B- 2B	C45	B- 3C
IC3	B- 4B	R3	A- 2A	R33	B- 3C	R62	B- 3C	C18	A- 2B		
IC4	B- 4C	R4	B- 1B	R35	B- 3A	R63	B- 2D	C19	B- 2D	LC1	A- 2B
IC5	B- 2A	R5	B- 2B	R36	A- 4A	R64	B- 4B	C20	B- 3A	LC2	A- 3B
IC6	B- 2A	R6	B- 1B	R37	B- 3A	R65	B- 3C	C21	A- 3D	LC3	A- 4B
		R7	B- 1B	R38	B- 4A	R66	B- 4C	C22	B- 3D	LC4	A- 2C
Q1	B- 2A	R8	B- 1B	R39	B- 4A	R67	B- 4D	C23	B- 4A	LC5	A- 2C
Q2	B- 2B	R9	B- 1C	R40	B- 4A			C24	B- 4A	LC6	A- 4C
Q3	B- 2B	R10	B- 1D	R41	B- 4A	VR1	A- 4B	C25	B- 4A		
Q4	B- 2C	R11	B- 1D	R42	B- 4A	VR2	A- 4B	C26	B- 4B	CN3	A- 3A
Q5	B- 1D	R12	B- 2D	R43	B- 4B	VR3	A- 4C	C27	A- 4B	CN4	A- 3A
Q6	B- 3A	R13	B- 2D	R44	B- 3C			C28	B- 3B	CN5	A- 4A
Q7	B- 3B	R14	B- 1C	R45	B- 4C	C1	B- 3A	C29	A- 3B	CN21	A- 1C
Q8	B- 3B	R15	B- 1C	R46	A- 4D	C2	B- 2B	C30	B- 4C	CN41	A- 2A
Q9	B- 2C	R16	B- 1C	R47	A- 3C	C3	B- 1B	C31	B- 4A		
Q10	B- 2D	R18	B- 2A	R48	A- 4C	C4	B- 2C	C32	A- 4D		
Q11	B- 3A	R19	A- 3A	R49	B- 4B	C5	A- 2C	C33	B- 4D		
Q12	B- 4B	R20	B- 2A	R50	B- 4B	C6	B- 1B	C34	A- 1B		
Q13	B- 4B	R21	B- 3A	R51	A- 1B	C7	A- 2B	C35	A- 1D		
Q14	B- 4C	R22	B- 2B	R52	B- 1C	C8	B- 1D	C36	B- 1C		
Q15	A- 4C	R23	B- 2B	R53	B- 2C	C9	B- 2B	C37	A- 2C		
Q16	B- 2C	R24	B- 3B	R54	B- 3B	C10	A- 2D	C38	A- 1B		
Q17	B- 2D	R25	B- 3B	R55	B- 1B	C11	B- 2D	C39	B- 1C		
Q18	B- 3C	R26	A- 2C	R56	B- 2C	C12	B- 3A	C40	B- 2C		
Q19	B- 3C	R27	B- 2D	R57	B- 1C	C13	B- 3B	C41	B- 3B		
Q20	B- 4B	R28	B- 3D	R58	B- 2C	C14	B- 2B	C42	B- 2B		
Q21	B- 4C	R29	B- 3D	R59	B- 1D	C15	B- 3B	C43	B- 3A		

Chip parts pin arrangement (Top view)


RANK
2SA1532
E
2SA1622
M
2SA1748
AL
2SB1219
C
2SB766
A
2SC3930
V
2SC3932
R
2SC4562
AM
2SD1820
W
2SD874
Z
2SJ84
1M
2SK198
10
2SK662
10
DTC124EU
15
XN4509
5L
MA142A
MB
MA142WA
MO
MA143A
MP
MA335
6E
33
10V

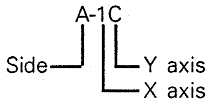
4.8 PA (Pre Amplifier board) SCHEMATIC DIAGRAM 04


Gray scale
H-rate
0.16 Vp-p
Gray scale
H-rate
0.6 Vp-p
CN3
To ISB CN3
+5V OUT
B OUT
GND
DC1.8V
CN4
To ISG CN4
0.16Vp-p
DC1.8V
+5V OUT
G OUT
GND
CN5
To ISR CN5
+5V OUT
R OUT
GND
DC1.8V
(+5V)
(-5V)
-5V
R51
0
C34
330/6.3
Q2
2SC3932
Q3
2SC3930
Q16
2SK662
Q17
2SC4562(QR)
Q4
2SK662
Q5
2SA1532
R5
4.7k
5.0
1.4
0.6
R4
1k
R56
1k
IC4.3
MC74HC4053BFL
R12
100
R13
3.9k
C10
33/10
C11
0.1
R15
560k
VR1
50k
B BLACK
VR1
B BLACK
IC1.2
R16
1M
C39
0.1
R52
100
C2
0.1
R3
1k
C1
0.1
C42
OPEN
R55
18k
R7
680
C4
0.1
IC1.1
NJM062
R59
3.9k
-2.9
R10
33k
R11
47k
C8
47P
R6
4.7k
C3
22P
R8
2.2k
C5
1/50
BP
R57
68k
R59
4.7K
Q1
2SK662
R2
33k
C9
68P
R9
3.9k
C6
0.1
LC4
SCV2366-001
C7
1/50
BP
LC1
SCV1859-001
Q7
2SC3932
Q8
2SC3930
Q18
2SK662
Q19
2SC4562(QR)
Q9
2SK662
Q10
2SA1532
R21
4.7k
R20
1k
0.7
R60
1k
IC4.1
R29
100
R30
3.9k
C21
33/10
C22
0.1
NEGATIVE FEED BACK
R23
8.2k
R24
680
R22
4.7k
C14
22P
R25
2.2k
BLACK LEVEL CTL
C15
0.1
IC2.1
NJM062
R63
4.7K
R27
33k
R28
47k
C19
47P
IC4
BLANKING CLEAN
R32
560k
VR2
50k
G BLACK
VR2
G BLACK
IC2.2
R33
1M
C40
0.1
R53
100
C13
0.1
R19
1k
C12
0.1
C43
OPEN
Q6
2SK662
R18
33k
C20
68P
C16
1/50
BP
R61
68k
R62
33k
R26
3.9k
C17
0.1
LC5
SCV2366-001
C18
1/50
BP
LC2
SCV1859-001
Q12
2SC3932
Q13
2SC3930
Q20
2SK662
Q21
2SC4562(QR)
Q14
2SK662
Q15
2SA1532
CLOCK NOISE FILTER
R38
4.7k
R37
1k
R64
1k
IC4.2
MC74HC4053BFL
R46
100
R48
3.9k
C32
33/10
C33
0.1
R49
560k
VR3
50k
R BLACK
VR3
R BLACK
IC3.2
R50
1M
C41
0.1
R54
100
C24
0.1
R36
1k
C23
0.1
C44
OPEN
R40
8.2k
R41
680
C26
0.1
IC3.1
NJM062
R67
4.7K
R44
33k
R45
47k
C30
47P
R47
0
C45
*
R39
4.7k
C25
22P
R42
2.2k
C27
1/50
BP
R65
68k
R66
33k
Q11
2SK662
R35
33k
C31
68P
R43
3.9k
C28
0.1
LC6
SCV2366-001
C29
1/50
BP
LC3
SCV1859-001
C35
100/6.3
+5V
C36
0.1
C37
100/6.3
C38
0.1
CN21
GND
+5V IN
-5V IN
B OUT
G OUT
R OUT
PBLK IN
B AB CTL
G AB CTL
R AB CTL
DC 0V
0.6Vp-p
5Vp-p
0~5VDC
0~5VDC
0~5VDC
CN41
To DR1 CN41
BCP IN
LOLUX ON IN
H.BLK IN
GND
5Vp-p
ON: 0V
5Vp-p
IC5
TC4S69FTE85L
IC6
TC4S69FTE85L
R14
0
R1
OPEN
93260

4.9 PR1 CIRCUIT BOARD

●ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.



IC1	B- 3C
IC2	B- 3C
IC3	B- 3D
IC4	B- 4B
IC5	B- 2C
IC6	B- 2C
IC7	B- 2D
IC8	B- 3B
IC9	B- 2C
IC10	B- 2C
IC11	B- 1D
IC12	B- 3B
IC13	B- 4F
IC14	B- 4F
IC15	B- 3F
IC16	B- 4C
Q2	B- 3E
Q3	B- 3E
Q4	B- 3E
Q5	B- 3E
Q6	B- 3C
Q7	B- 3E
Q8	B- 3D
Q9	A- 3D
Q11	B- 2E
Q12	B- 2E
Q13	B- 2E
Q14	B- 2E
Q15	B- 3C
Q16	B- 3E
Q17	B- 2D
Q18	A- 2D
Q20	B- 2E
Q21	B- 2E
Q22	B- 1E
Q23	B- 2E
Q24	B- 2C
Q25	B- 2E
Q26	B- 1E
Q27	A- 2D
Q28	B- 3F
Q29	B- 2F
Q30	B- 1F
Q31	B- 2F
Q32	B- 3F
Q33	B- 2A
Q34	B- 2B
Q35	B- 1A
Q36	B- 1B
Q37	A- 3E
Q38	A- 2E
Q39	A- 2E
Q40	A- 3E
Q41	A- 2E
Q42	A- 2E
Q43	A- 3E
Q44	A- 2E
Q45	A- 2E
Q46	A- 3C
D1	A- 3C
D2	A- 2C
D3	A- 2C
R1	A- 4E
R2	B- 4D
R4	B- 3F
R5	B- 3F
R6	B- 3E
R7	B- 3E
R8	B- 3E
R9	B- 3E
R10	B- 1E
R11	B- 3E
R12	B- 3E
R13	B- 3C
R14	B- 3C
R15	B- 3D
R16	B- 3E
R17	B- 3D
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R19	B- 3D
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R44	A- 2D
R45	B- 1E
R46	B- 3E
R47	B- 2E
R48	B- 3C
R49	B- 3C
R50	B- 2D
R51	B- 3E
R52	B- 2D
R53	B- 2D
R54	B- 2D
R55	B- 2C
R56	A- 2C
R57	B- 2C
R58	A- 2C
R59	B- 2D
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R178	A- 2E
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R180	B- 3C
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R182	B- 1C
R183	A- 3E
R184	A- 2D
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R191	B- 2E
R192	B- 1E
R193	A- 4F
R194	A- 4F
R195	B- 4C
R196	B- 4C
VR1	A- 1E
VR2	A- 1E
VR3	A- 1D
VR4	A- 1D
VR5	A- 1D
VR6	A- 1C
VR7	A- 1E
VR8	A- 1E
VR9	A- 1F
VR10	A- 1F
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VR12	A- 1C
VR13	A- 1C
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C2	B- 4C
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C5	B- 4C
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C8	B- 3E
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C34	A- 2D
C35	B- 2D
C36	A- 2C
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C38	A- 2D
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C43	B- 1E
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C56	A- 2D
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C61	A- 3F
C62	B- 4F
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C87	A- 2E
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C100	A- 2F
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C103	B- 3D
C104	B- 2D
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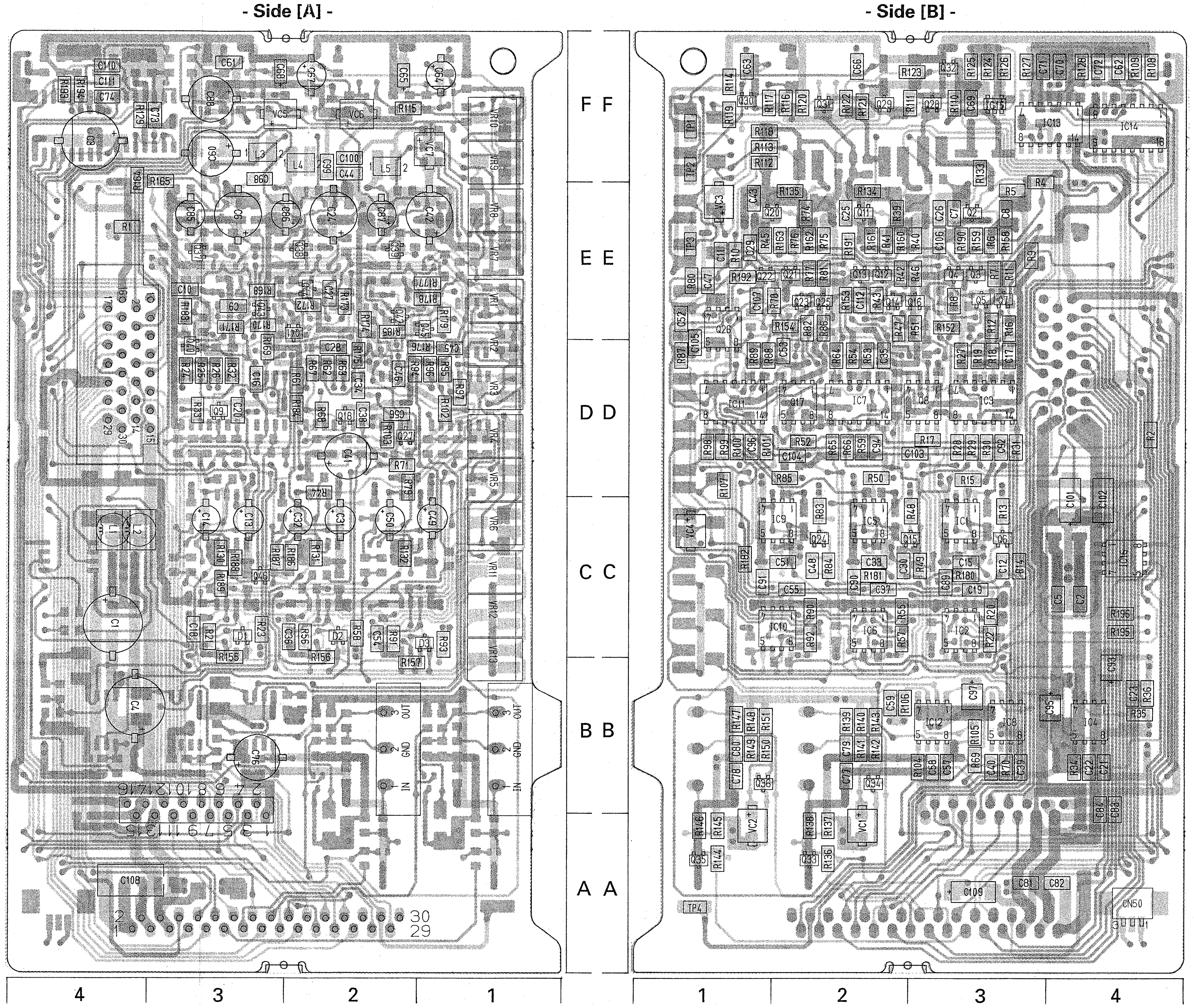
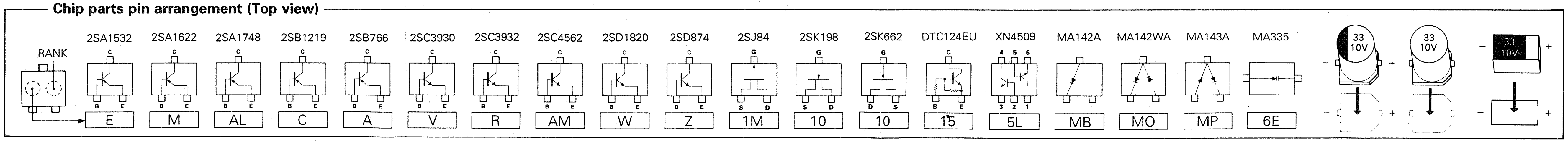
C106	B- 3E
C107	B- 1E
C108	A- 4A
C109	B- 3A
C110	A- 4F
C111	A- 4F
C112	B- 2E
VC1	B- 2A
VC2	B- 1A
VC3	B- 1E
VC4	B- 1C
VC5	A- 3F
VC6	A- 2F
VC7	A- 1F
L1	A- 4C
L2	A- 4C
L3	A- 3F
L4	A- 2F
L5	A- 2F
DL1	A- 2B
DL2	A- 1B
TP1	B- 1F
TP2	B- 1F
TP3	B- 1E
TP4	B- 1A
CN1	A- 3E
CN36	A- 3B
CN37	A- 4A
CN50	B- 4A

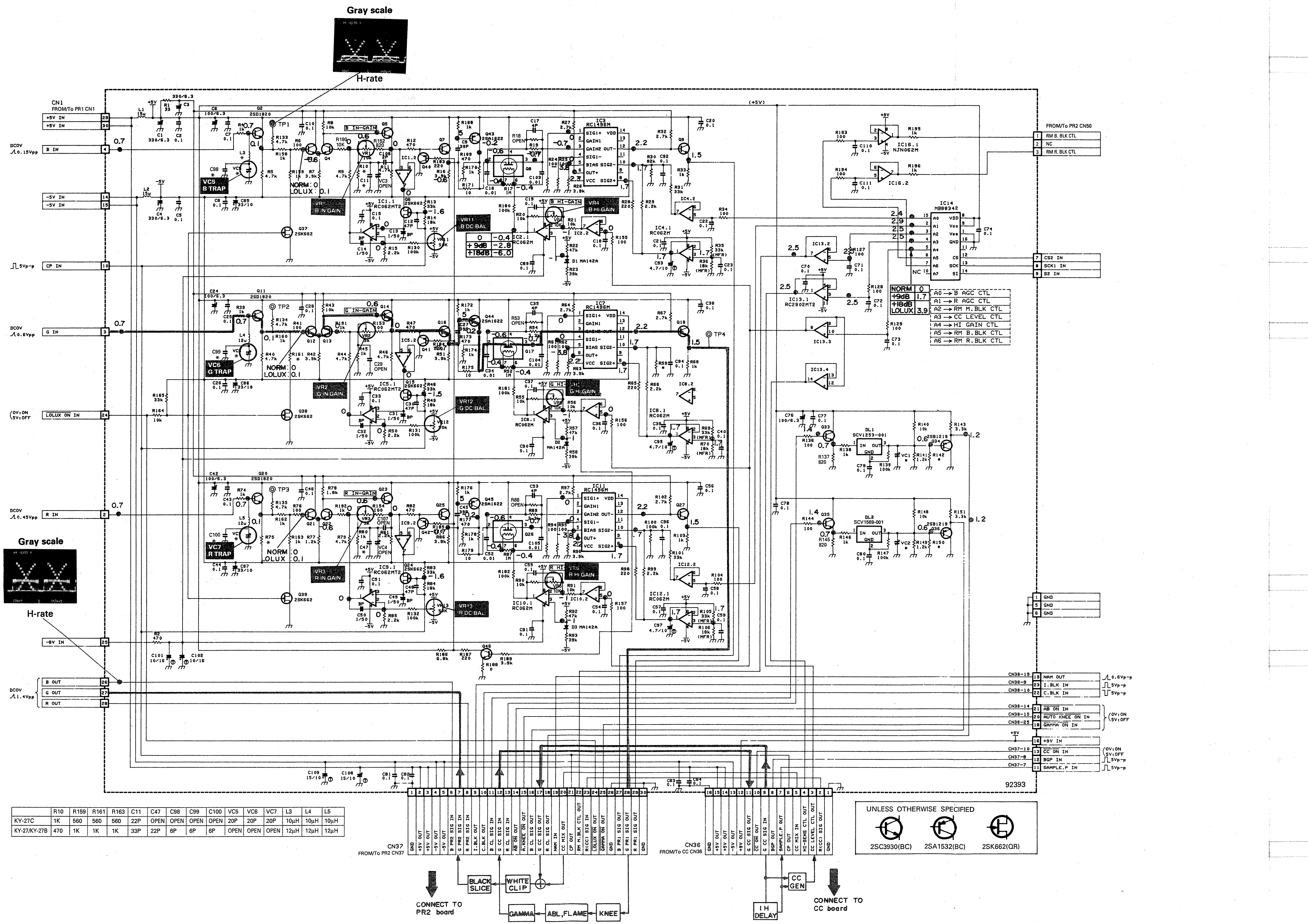

- Side [A] -

- Side [B] -

Chip parts pin arrangement (Top view)



4.10 PR1 (video PRocess No.1 circuit) SCHEMATIC DIAGRAM 07

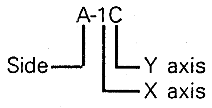

Gray scale
H-rate
Gray scale
H-rate
CN1
FROM/To PR1 CN1
29 +5V IN
30 +5V IN
DC0V 0.15Vpp
4 B IN
14 -5V IN
15 -5V IN
5Vp-p
10 CP IN
DC0V 0.6Vpp
3 G IN
(0V:ON 5V:OFF
24 LOLUX ON IN
DC0V 0.45Vpp
2 R IN
25 -8V IN
DC0V 1.4Vpp
26 B OUT
27 G OUT
28 R OUT
(+5V)
TP1
TP2
TP3
TP4
B IN-GAIN
G IN-GAIN
R IN-GAIN
VC5 B TRAP
VC6 G TRAP
VC7 R TRAP
NORM: 0
LOLUX: 0.1
VR1 B IN GAIN
VR2 G IN GAIN
VR3 R IN GAIN
VR11 B DC BAL
VR12 G DC BAL
VR13 R DC BAL
B HI-GAIN
G HI-GAIN
R HI-GAIN
VR4 B HI GAIN
VR5 G HI GAIN
VR6 R HI GAIN
0 -0.4
+9dB -2.8
+18dB -6.0
IC3 RC1496M
IC7 RC1496M
IC11 RC1496M
SIG1+ VDD
GAIN1
GAIN2 OUT-
SIG1-
BIAS SIG2-
OUT+
VCC SIG2+
IC1.1 RC062MT2
IC5.1 RC062MT2
IC9.1 RC062MT2
IC2.1 RC062M
IC6.1 RC062M
IC10.1 RC062M
IC4.1 RC062M
IC8.1 RC062M
IC12.1 RC062M
D1 MA142A
D2 MA142A
D3 MA142A
Q37 2SK662
Q38 2SK662
Q39 2SK662
Q43 2SA1622
Q44 2SA1622
Q45 2SA1622
IC16.1 NJN062M
IC16.2
IC13.1 RC2902MT2
IC13.2
IC13.3
IC13.4
IC14 MB88342
A0 VDD
A1 Vcc
A2 Vss
A3 GND
A4
A5 CS
A6 SCK
NC A7 SI
NORM 0
+9dB 1.7
+18dB LOLUX 3.9
A0 → B AGC CTL
A1 → R AGC CTL
A2 → RM M.BLK CTL
A3 → CC LEVEL CTL
A4 → HI GAIN CTL
A5 → RM B.BLK CTL
A6 → RM R.BLK CTL
FROM/To PR2 CN50
1 RM B. BLK CTL
2 NC
3 RM R. BLK CTL
7 CS2 IN
8 SCK1 IN
9 S2 IN
DL1 SCV1253-001
DL2 SCV1569-001
IN OUT
GND
1 GND
5 GND
6 GND
CN38-19 19 NAM OUT 0.6Vp-p
CN38-9 23 I.BLK IN 5Vp-p
CN38-10 22 C.BLK IN 5Vp-p
CN38-14 21 AB ON IN
CN38-15 20 AUTO KNEE ON IN
CN38-25 18 GAMMA ON IN
(0V:ON 5V:OFF
+9V
16 +9V IN
CN37-10 13 CC ON IN
(0V:ON 5V:OFF
CN37-8 12 BGP IN 5Vp-p
CN37-7 11 SAMPLE.P IN 5Vp-p
92393
CN37
FROM/To PR2 CN37
1 GND
2 +5V OUT
3 +5V OUT
4 -5V OUT
5 -5V OUT
6 B PR2 SIG IN
7 G PR2 SIG IN
8 R PR2 SIG IN
9 I.BLK OUT
10 C.BLK OUT
11 B CL SIG IN
12 G CC SIG IN
13 R CL SIG IN
14 AB ON OUT
15 A.KNEE ON OUT
16 B CL SIG OUT
17 G CC SIG OUT
18 R CL SIG OUT
19 NAM IN
20 CC MIX OUT
21 CP OUT
22 RM M.BLK CTL OUT
23 R(CC) SIG IN
24 LOLUX ON OUT
25 GAMMA ON OUT
26 GND
27 B PR1 SIG OUT
28 G PR1 SIG OUT
29 R PR1 SIG OUT
30 GND
CN36
FROM/To CC CN36
16 GND
15 +5V OUT
14 +5V OUT
13 -5V OUT
12 +9V OUT
11 G CC SIG OUT
10 CC ON OUT
9 G CC SIG IN
8 BGP OUT
7 SAMPLE.P OUT
6 CP OUT
5 CC MIX IN
4 HI-SENS CTL OUT
3 CC LEVEL CTL OUT
2 R(CC) SIG OUT
1 GND
BLACK SLICE
WHITE CLIP
GAMMA
ABL, FLAME
KNEE
CONNECT TO PR2 board
1H DELAY
CC GEN
CONNECT TO CC board
UNLESS OTHERWISE SPECIFIED
2SC3930(BC)
2SA1532(BC)
2SK662(QR)

	R10	R159	R161	R163	C11	C47	C98	C99	C100	VC5	VC6	VC7	L3	L4	L5
KY-27C	1K	560	560	560	22P	OPEN	OPEN	OPEN	OPEN	20P	20P	20P	10µH	10µH	10µH
KY-27/KY-27B	470	1K	1K	1K	33P	22P	6P	6P	6P	OPEN	OPEN	OPEN	12µH	12µH	12µH

4.11 PR2 CIRCUIT BOARD

●ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.



IC1	A- 3E
IC2	A- 3D
IC3	A- 3B
IC4	A- 3E
IC5	A- 3D
IC6	A- 3B
IC7	A- 2B
IC8	A- 2E
IC9	A- 2D
IC10	A- 2B
IC11	A- 1F
IC12	A- 2C
IC13	B- 1A
IC14	B- 2E
IC15	B- 3F
IC16	B- 4F
IC17	A- 3F
IC18	A- 3F
Q1	B- 2E
Q2	B- 1F
Q3	B- 4E
Q4	B- 4E
Q5	B- 2C
Q6	A- 2A
Q7	B- 4D
Q8	B- 4C
Q9	B- 2B
Q10	B- 1F
Q11	B- 4B
Q12	B- 4B
Q19	B- 3A
Q20	B- 2A
Q21	B- 2A
Q22	B- 2A
Q23	B- 2A
Q24	B- 2A
Q25	B- 2A
Q26	B- 2B
Q27	B- 2B
Q28	B- 3A
Q29	B- 2A
Q30	B- 1F
Q31	B- 1A
Q32	B- 1A
Q33	B- 4E
Q34	B- 4D
Q35	B- 4B
Q36	A- 1E
Q37	A- 1E
Q38	A- 1E
Q40	B- 4F
Q41	B- 3F
Q42	B- 4F
Q43	B- 4F
D1	B- 1F
D2	B- 1B
R1	B- 3E
R2	B- 3E
R3	B- 3E
R4	B- 3E
R5	B- 3E
R6	A- 2E
R7	A- 2E
R8	A- 2E
R9	A- 2E
R10	B- 1E
R11	B- 1E
R12	B- 3E
R13	B- 3E
R14	B- 2E
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R16	B- 1F
R17	B- 1F
R18	B- 3E
R19	B- 3E
R20	B- 3E
R21	B- 4E
R22	B- 3E
R23	B- 4E
R24	B- 4E
R25	B- 4E
R26	B- 3D
R27	B- 3D
R28	B- 3D
R29	B- 3D
R30	B- 3D
R31	A- 2D
R32	A- 2D
R33	A- 2D
R34	A- 2D
R35	B- 1E
R36	B- 1E
R37	B- 3C
R38	B- 3C
R39	B- 2C
R42	B- 3C
R43	B- 3C
R44	B- 3C
R45	B- 4D
R46	B- 3D
R47	B- 4D
R48	B- 4D
R49	B- 4D
R50	B- 3C
R51	B- 3C
R52	B- 3C
R53	B- 3B
R54	B- 3C
R55	A- 2C
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R57	A- 2B
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R59	B- 1E
R60	B- 1E
R61	B- 3B
R62	B- 3B
R63	B- 2B
R64	B- 1F
R65	B- 1F
R66	B- 1F
R67	B- 3B
R68	B- 3B
R69	B- 4B
R70	B- 3B
R71	B- 4C
R72	B- 4C
R73	B- 4B
R86	B- 3A
R87	B- 2A
R88	B- 2A
R89	B- 2A
R90	B- 2A
R91	B- 2A
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R95	B- 2A
R96	B- 2A
R97	B- 2B
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R99	B- 1A
R100	B- 1A
R101	B- 1B
R102	B- 1B
R103	B- 1B
R104	B- 2A
R105	B- 1E
R106	B- 1D
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R113	B- 2E
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R121	B- 2C
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R125	B- 1C
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R210	B- 4F
R211	B- 4F
R212	B- 3B
R213	A- 1D
R214	A- 1D
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R216	A- 1C
VR1	A- 1F
VR2	A- 1F
VR3	A- 1E
VR4	A- 1E
VR5	A- 1E
VR6	A- 1E
VR7	A- 1D
VR8	A- 1D
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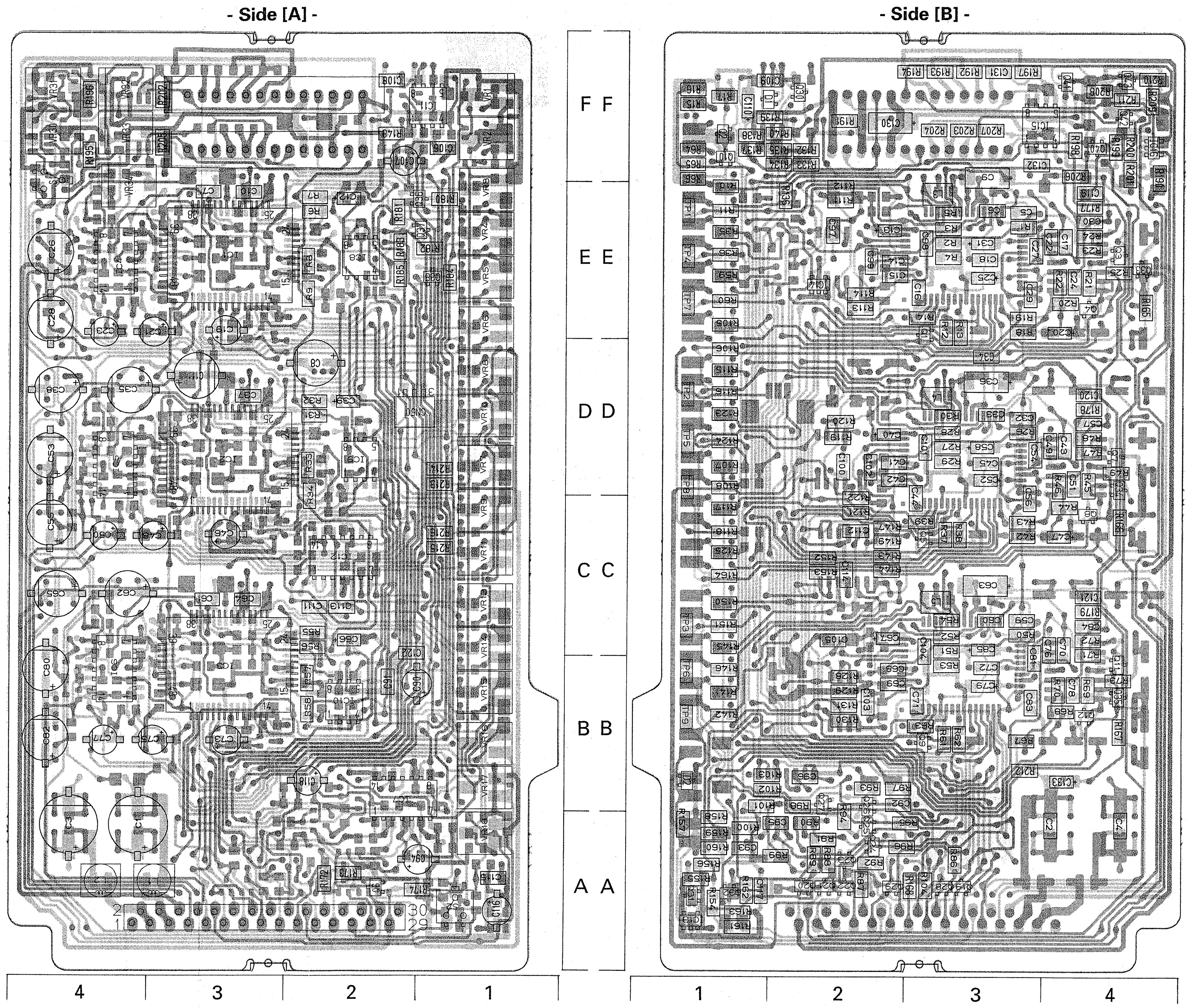
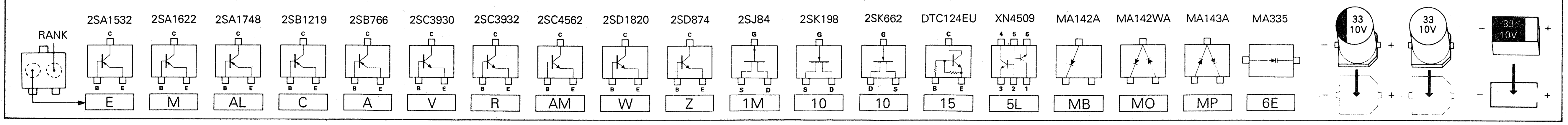
VR10	A- 1D
VR11	A- 1C
VR13	A- 1C
VR14	A- 1C
VR15	A- 1B
VR16	A- 1B
VR17	A- 1B
VR18	A- 1A
VR30	A- 4F
VR31	A- 4F
VR32	A- 3F
VR33	A- 3F
VR34	A- 3E
C1	A- 3A
C2	B- 3A
C3	A- 4A
C4	B- 4A
C5	B- 3E
C6	B- 3E
C7	A- 3E
C8	A- 2D
C9	B- 3F
C10	A- 3E
C11	A- 3D
C12	A- 2E
C13	B- 2E
C14	B- 2E
C15	B- 2E
C16	B- 2E
C17	B- 3E
C18	B- 3E
C19	A- 3E
C20	B- 3E
C21	A- 3E
C22	B- 3E
C23	A- 4E
C24	B- 3E
C25	B- 3E
C26	A- 4E
C27	B- 3E
C28	A- 4E
C29	B- 3E
C30	B- 4E
C31	B- 3E
C32	B- 3D
C33	B- 3D
C34	B- 3D
C35	A- 3D
C36	B- 3D
C37	A- 3D
C38	A- 4D
C39	A- 2D
C40	B- 2D
C41	B- 2D
C42	B- 2D
C43	B- 3D
C44	B- 2C
C45	B- 3D
C46	A- 3C
C47	B- 3C
C48	A- 3C
C49	B- 3D
C50	A- 4C
C51	B- 3D
C52	B- 3D
C53	A- 4D
C54	B- 3D
C55	A- 4C
C56	B- 3C
C57	B- 4D
C58	B- 3D
C59	B- 3C
C60	B- 3C
C61	A- 3C
C62	A- 3C
C63	B- 3C
C64	A- 3C
C65	A- 4C
C66	A- 2C
C67	B- 2C
C68	B- 2B
C69	B- 2B
C70	B- 3C
C71	B- 2B
C72	B- 3B
C73	A- 3B
C75	A- 3B
C76	B- 3C
C77	A- 4B
C78	B- 3B
C79	B- 3B
C80	A- 4B
C81	B- 3B
C82	A- 4B
C83	B- 3B
C84	B- 4C
C85	B- 3C
C90	A- 1B
C91	A- 2B
C92	B- 2B
C93	B- 1A
C94	A- 1A
C95	B- 1A
C96	B- 2B
C97	B- 2E
C98	B- 2E
C99	B- 2E
C100	B- 2D
C101	B- 2D
C102	B- 2D
C103	B- 2B
C104	B- 2C
C105	B- 2C
C106	A- 1F
C107	A- 1F
C108	A- 2F
C109	B- 1F
C110	B- 1F
C111	A- 2C
C112	B- 2C
C113	A- 2C
C114	B- 2C
C115	A- 1A
C116	A- 1A
C117	B- 1A
C118	A- 2B
C119	B- 4E
C120	B- 4D
C121	B- 4C
C122	A- 1C
C130	B- 2F
C131	B- 3F
C132	B- 3F
C133	B- 3B
L1	A- 3A
L2	A- 4A
L3	B- 2E
L4	B- 2D
L5	B- 2C
TP1	B- 1E
TP2	B- 1D
TP3	B- 1C
TP4	B- 1E
TP5	B- 1D
TP6	B- 1B
TP7	B- 1E
TP8	B- 1D
TP9	B- 1B
CN37	A- 3A
CN50	A- 1D
S1	A- 4F
S2	A- 1A

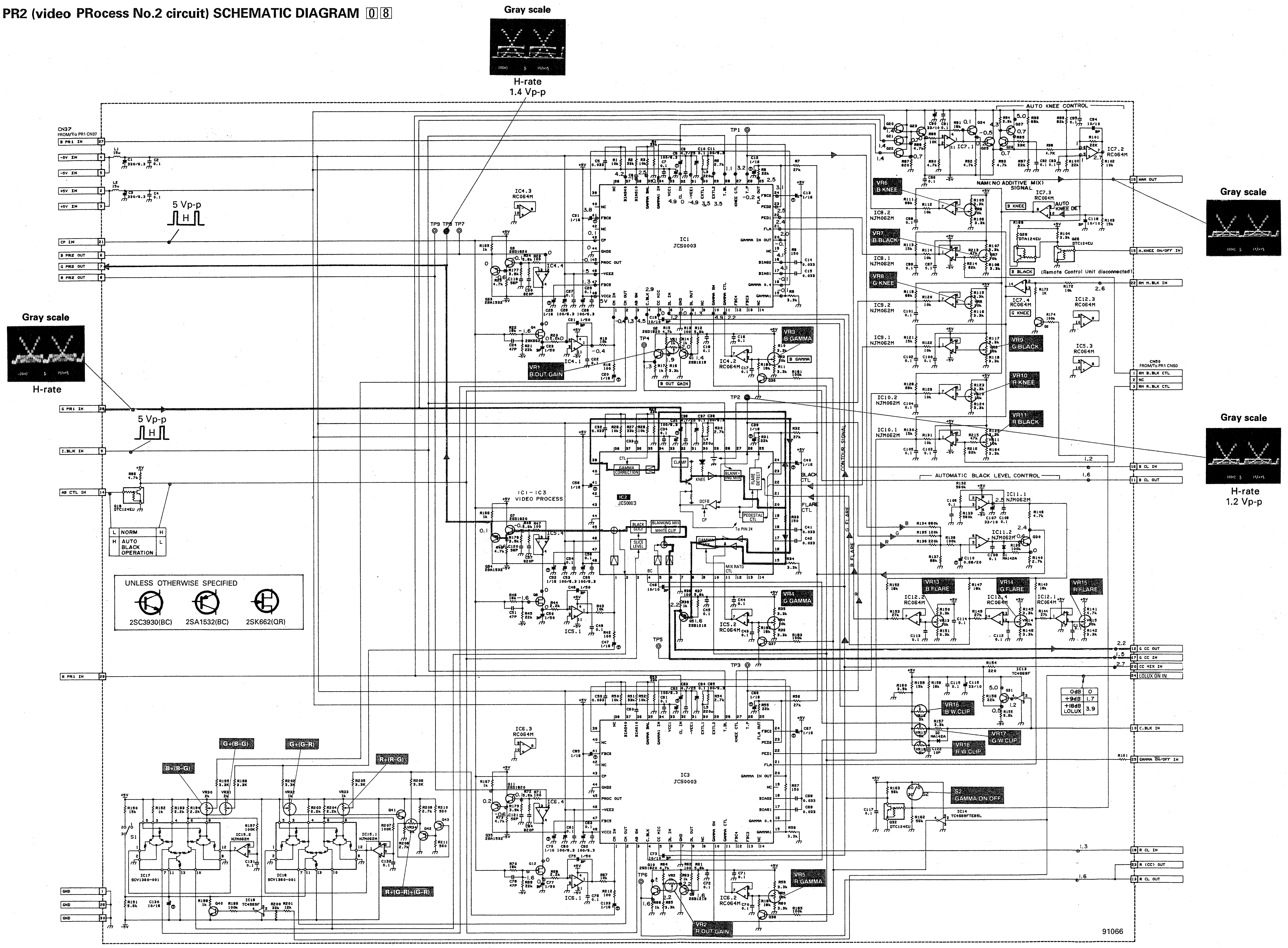

- Side [A] -

- Side [B] -

Chip parts pin arrangement (Top view)



4.12 PR2 (video PRocess No.2 circuit) SCHEMATIC DIAGRAM 08


Gray scale
H-rate
1.4 Vp-p
Gray scale
H-rate
Gray scale
Gray scale
H-rate
1.2 Vp-p
5 Vp-p
5 Vp-p
H
CN37
FROM/To PR1 CN37
B PR1 IN
-5V IN
-5V IN
+5V IN
+5V IN
CP IN
B PR2 OUT
G PR2 OUT
R PR2 OUT
G PR1 IN
I.BLK IN
AB CTL IN
R PR1 IN
GND
GND
GND
L NORM
H AUTO BLACK OPERATION
UNLESS OTHERWISE SPECIFIED
2SC3930(BC)
2SA1532(BC)
2SK662(QR)
IC1
JCS0003
IC2
JCS0003
IC3
JCS0003
IC1-IC3
VIDEO PROCESS
GAMMA CORRECTION
CLAMP
KNEE
BLANKING MIX
FLARE DETECT
BLACK SLICE
BLANKING MIX
WHITE CLIP
SLICE LEVEL
PEDESTAL CTL
GAMMA MIX
MIX RATIO CTL
To PIN 24
CONTOUR SIGNAL
BLACK CTL
FLARE CTL
G FLARE
B FLARE
TP1
TP2
TP3
TP4
TP5
TP6
TP7
TP8
TP9
VR1 B OUT GAIN
VR2 R OUT GAIN
VR3 B GAMMA
VR4 G GAMMA
VR5 R GAMMA
VR6 B KNEE
VR7 B BLACK
VR8 G KNEE
VR9 G BLACK
VR10 R KNEE
VR11 R BLACK
VR13 B FLARE
VR14 G FLARE
VR15 R FLARE
VR16 B W.CLIP
VR17 G W.CLIP
VR18 R W.CLIP
S2 GAMMA ON/OFF
AUTO KNEE CONTROL
NAM(NO ADDITIVE MIX) SIGNAL
AUTO KNEE DET
B KNEE
G KNEE
B BLACK
(Remote Control Unit disconnected)
B GAMMA
B OUT GAIN
AUTOMATIC BLACK LEVEL CONTROL
IC7.1
IC7.2
RC064M
IC7.3
RC064M
IC7.4
RC064M
IC8.1
NJM062M
IC8.2
NJM062M
IC9.1
NJM062M
IC9.2
NJM062M
IC10.1
NJM062M
IC10.2
NJM062M
IC11.1
NJM062M
IC11.2
NJM062M
IC12.1
RC064M
IC12.2
RC064M
IC12.3
RC064M
IC12.4
RC064M
IC4.1
IC4.2
RC064M
IC4.3
RC064M
IC4.4
IC5.1
IC5.2
RC064M
IC5.3
RC064M
IC5.4
IC6.1
IC6.2
RC064M
IC6.3
RC064M
IC6.4
IC13
TC4S66F
IC14
TC4S66FTE85L
IC15.1
NJM062M
IC15.2
NJM062M
IC17
SCV1380-001
IC18
SCV1380-001
B+(B-G)
G+(B-G)
G+(G-R)
R+(R-G)
R+(G-R)+(G-R)
S1
NAM OUT
A.KNEE ON/OFF IN
RH H.BLK IN
CN50
FROM/To PR1 CN50
RH B.BLK CTL
NC
RH R.BLK CTL
B CL IN
B CL OUT
G CC OUT
G CC IN
CC MIX IN
LOLUX ON IN
C.BLK IN
GAMMA ON/OFF IN
R CL IN
R (CC) OUT
R CL OUT
0dB 0
+9dB 1.7
+18dB LOLUX 3.9
91066

4.13 CC CIRCUIT BOARD

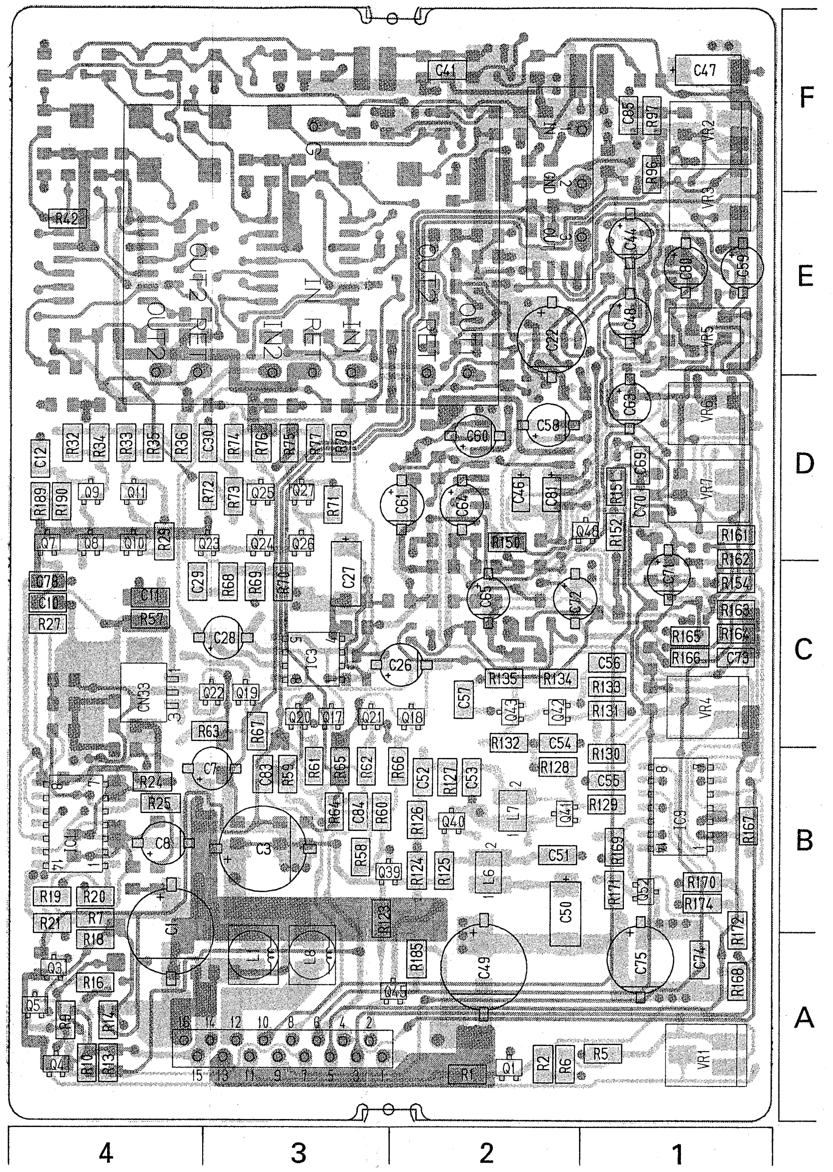
●ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.

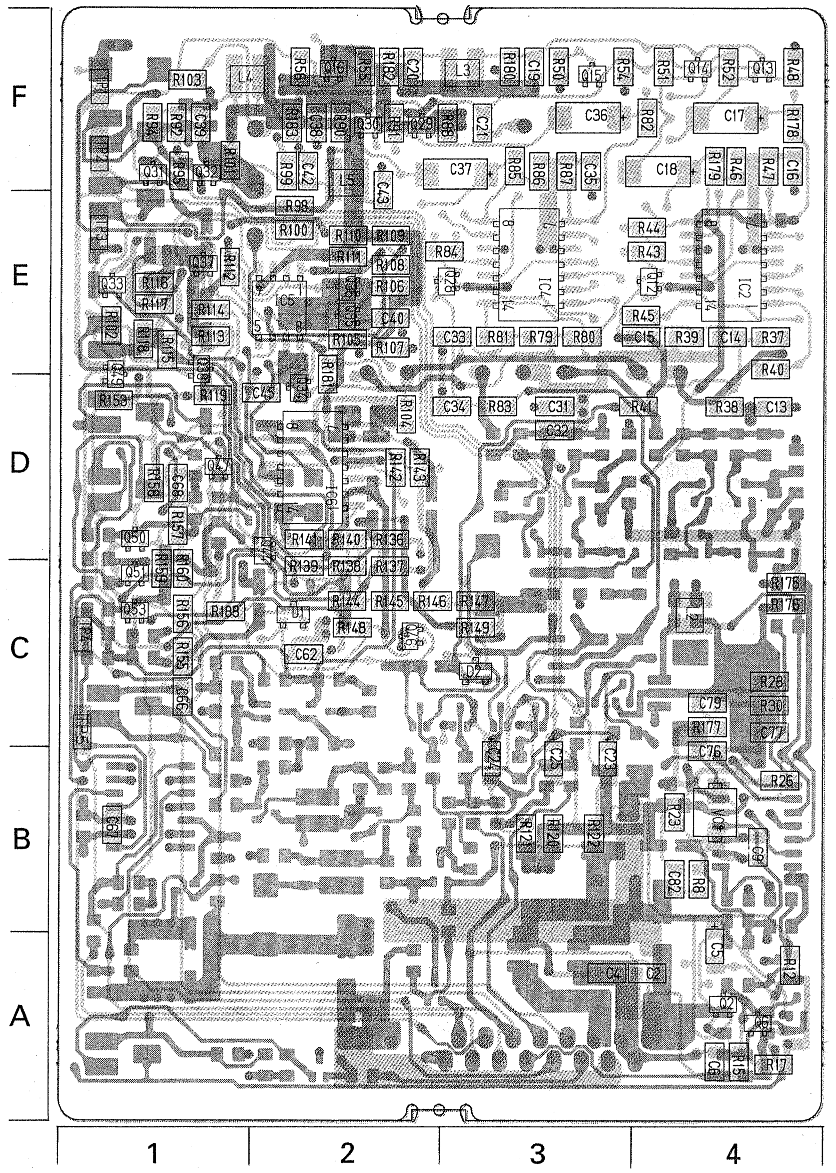
A-1C
Side ── Y axis
X axis

IC1	A- 4B
IC2	B- 4E
IC3	A- 3C
IC4	B- 3E
IC5	B- 2E
IC6	B- 2D
IC9	A- 1B
Q1	A- 2A
Q2	B- 4A
Q3	A- 4A
Q4	A- 4A
Q5	A- 4A
Q6	B- 4A
Q7	A- 4D
Q8	A- 4D
Q9	A- 4D
Q10	A- 4D
Q11	A- 4D
Q12	B- 4E
Q13	B- 4F
Q14	B- 4F
Q15	B- 3F
Q16	B- 2F
Q17	A- 3C
Q18	A- 2C
Q19	A- 3C
Q20	A- 3C
Q21	A- 3C
Q22	A- 3C
Q23	A- 3D
Q24	A- 3D
Q25	A- 3D
Q26	A- 3D
Q27	A- 3D
Q28	B- 3E
Q29	B- 2F
Q30	B- 2F
Q31	B- 1F
Q32	B- 1F
Q33	B- 1E
Q34	B- 2D
Q35	B- 2E
Q36	B- 2E
Q37	B- 1E
Q38	B- 1E
Q39	A- 2B
Q40	A- 2B
Q41	A- 2B
Q42	A- 2C
Q43	A- 2C
Q44	B- 2D
Q45	A- 2A
Q46	B- 2C
Q47	B- 1D
Q48	A- 1D
Q49	B- 1E
Q50	B- 1D
Q51	B- 1C
Q52	A- 1B
Q53	B- 1C
D1	B- 2C
D2	B- 3C
R1	A- 2A
R2	A- 2A
R5	A- 1A
R6	A- 2A
R7	A- 4B
R8	B- 4B
R9	A- 4A
R10	A- 4A
R12	B- 4A
R13	A- 4A
R14	A- 4A
R15	B- 4A
R16	A- 4A
R17	B- 4A
R18	A- 4A
R19	A- 4B
R20	A- 4B
R21	A- 4B
R23	B- 4B
R24	A- 4B
R25	A- 4B
R26	B- 4B
R27	A- 4C
R28	B- 4C
R29	A- 4D
R30	B- 4C
R32	A- 4D
R33	A- 4D
R34	A- 4D
R35	A- 4D
R36	A- 4D
R37	B- 4E
R38	B- 4D
R39	B- 4E
R40	B- 4E
R41	B- 3D
R42	A- 4E
R43	B- 4E
R44	B- 4E
R45	B- 4E
R46	B- 4F
R47	B- 4F
R48	B- 4F
R50	B- 3F
R51	B- 4F
R52	B- 4F
R54	B- 3F
R55	B- 2F
R56	B- 2F
R57	A- 4C
R58	A- 3B
R59	A- 3B
R60	A- 3B
R61	A- 3B
R62	A- 3B
R63	A- 3C
R64	A- 3B
R65	A- 3B
R66	A- 2B
R67	A- 3C
R68	A- 3C
R69	A- 3C
R70	A- 3C
R71	A- 3D
R72	A- 3D
R73	A- 3D
R74	A- 3D
R75	A- 3D
R76	A- 3D
R77	A- 3D
R78	A- 3D
R79	B- 3E
R80	B- 3E
R81	B- 3E
R82	B- 4F
R83	B- 3D
R84	B- 2E
R85	B- 3F
R86	B- 3F
R87	B- 3F
R88	B- 3F
R90	B- 2F
R91	B- 2F
R92	B- 1F
R94	B- 1F
R95	B- 1F
R96	A- 1F
R97	A- 1F
R98	B- 2E
R99	B- 2F
R100	B- 2E
R101	B- 1F
R102	B- 1E
R103	B- 1F
R104	B- 2D
R105	B- 2E
R106	B- 2E
R107	B- 2E
R108	B- 2E
R109	B- 2E
R110	B- 2E
R111	B- 2E
R112	B- 1E
R113	B- 1E
R114	B- 1E
R115	B- 1E
R116	B- 1E
R117	B- 1E
R118	B- 1E
R119	B- 1D
R120	B- 3B
R121	B- 3B
R122	B- 3B
R123	A- 3B
R124	A- 2B
R125	A- 2B
R126	A- 2B
R127	A- 2B
R128	A- 2B
R129	A- 1B
R130	A- 1B
R131	A- 1C
R132	A- 2C
R133	A- 1C
R134	A- 2C
R135	A- 2C
R136	B- 2D
R137	B- 2C
R138	B- 2C
R139	B- 2C
R140	B- 2D
R141	B- 2D
R142	B- 2D
R143	B- 2D
R144	B- 2C
R145	B- 2C
R146	B- 2C
R147	B- 3C
R148	B- 2C
R149	B- 3C
R150	A- 2D
R151	A- 1D
R152	A- 1D
R153	B- 1D
R154	A- 1C
R155	B- 1C
R156	B- 1C
R157	B- 1D
R158	B- 1D
R159	B- 1C
R160	B- 1C
R161	A- 1D
R162	A- 1D
R163	A- 1C
R164	A- 1C
R165	A- 1C
R166	A- 1C
R167	A- 1B
R168	A- 1A
R169	A- 1B
R170	A- 1B
R171	A- 1B
R172	A- 1A
R174	A- 1B
R175	B- 4C
R176	B- 4C
R177	B- 4C
R178	B- 4F
R179	B- 4F
R180	B- 3F
R181	B- 2D
R182	B- 2F
R183	B- 2F
R185	A- 2A
R188	B- 1C
R189	A- 4D
R190	A- 4D
VR1	A- 1A
VR2	A- 1F
VR3	A- 1E
VR4	A- 1C
VR5	A- 1E
VR6	A- 1D
VR7	A- 1D
C1	A- 4A
C2	B- 4A
C3	A- 3B
C4	B- 3A
C5	B- 4A
C6	B- 4A
C7	A- 3B
C8	A- 4B
C9	B- 4B
C10	A- 4C
C11	A- 4C
C12	A- 4D
C13	B- 4D
C14	B- 4E
C15	B- 4E
C16	B- 4F
C17	B- 4F
C18	B- 4F
C19	B- 3F
C20	B- 2F
C21	B- 3F
C22	A- 2E
C23	B- 3B
C24	B- 3B
C25	B- 3B
C26	A- 2C
C27	A- 3C
C28	A- 3C
C29	A- 3C
C30	A- 3D
C31	B- 3D
C32	B- 3D
C33	B- 3E
C34	B- 3D
C35	B- 3F
C36	B- 3F
C37	B- 3F
C38	B- 2F
C39	B- 1F
C40	B- 2E
C41	A- 2F
C42	B- 2F
C43	B- 2F
C44	A- 1E
C45	B- 2D
C46	A- 2D
C47	A- 1F
C48	A- 1E
C49	A- 2A
C50	A- 2B
C51	A- 2B
C52	A- 2B
C53	A- 2B
C54	A- 2C
C55	A- 1B
C56	A- 1C
C57	A- 2C
C58	A- 2D
C59	A- 1E
C60	A- 2D
C61	A- 2D
C62	B- 2C
C63	A- 1D
C64	A- 2D
C65	A- 2C
C66	B- 1C
C67	B- 1B
C68	B- 1D
C69	A- 1D
C70	A- 1D
C71	A- 1C
C72	A- 2C
C73	A- 1C
C74	A- 1A
C75	A- 1A
C76	B- 4B
C77	B- 4C
C78	A- 4C
C79	B- 4C
C80	A- 1E
C81	A- 2D
C82	B- 4B
C83	A- 3B
C84	A- 3B
C85	A- 1F
VC1	B- 4B
L1	A- 3A
L2	B- 4C
L3	B- 3F
L4	B- 1F
L5	B- 2F
L6	A- 2B
L7	A- 2B
L8	A- 3A
DL1	A- 2E
DL2	A- 2F
TP1	B- 1F
TP2	B- 1F
TP3	B- 1E
TP4	B- 1C
TP5	B- 1C
CN33	A- 4C
CN36	A- 3A

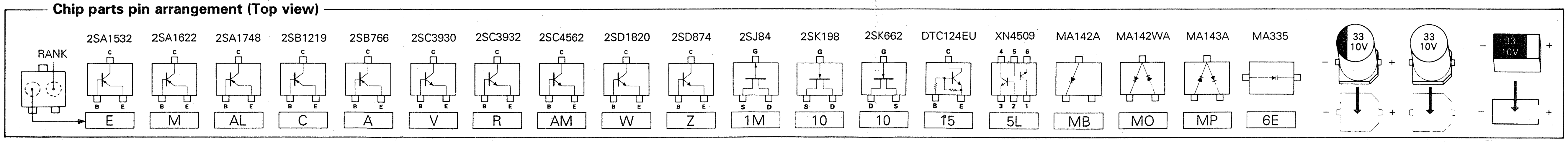
- Side [A] -



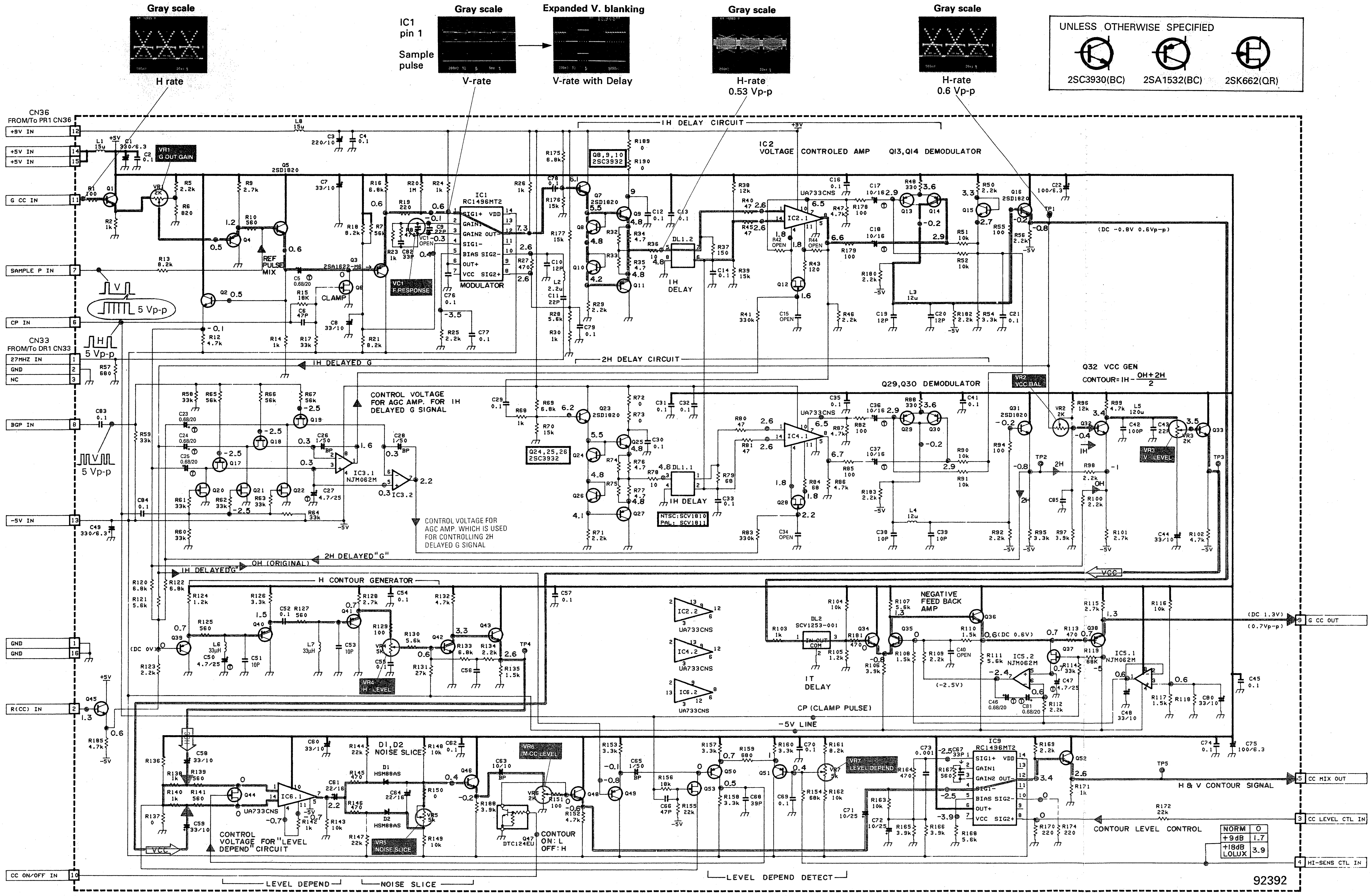
- Side [B] -



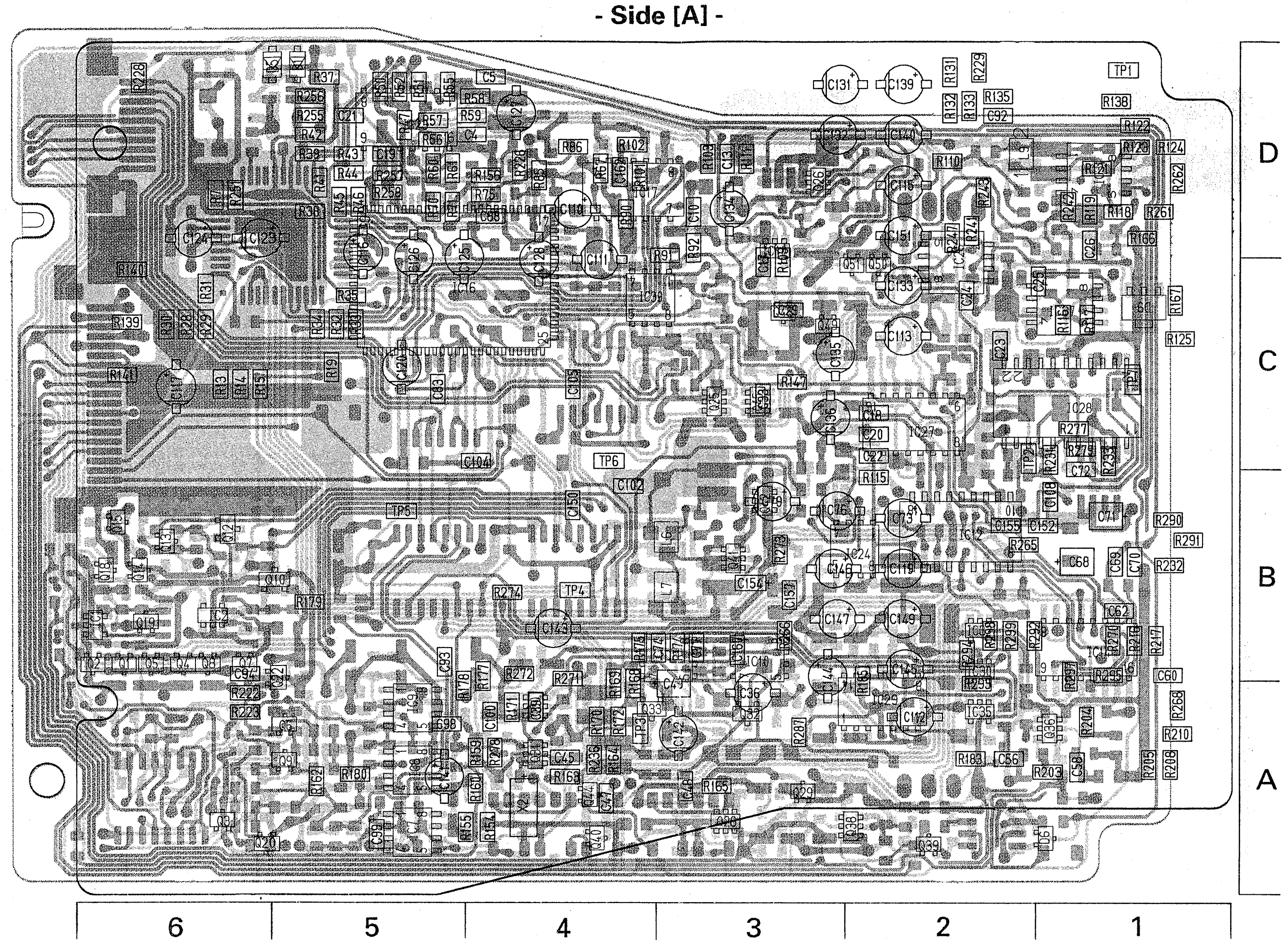
Chip parts pin arrangement (Top view)

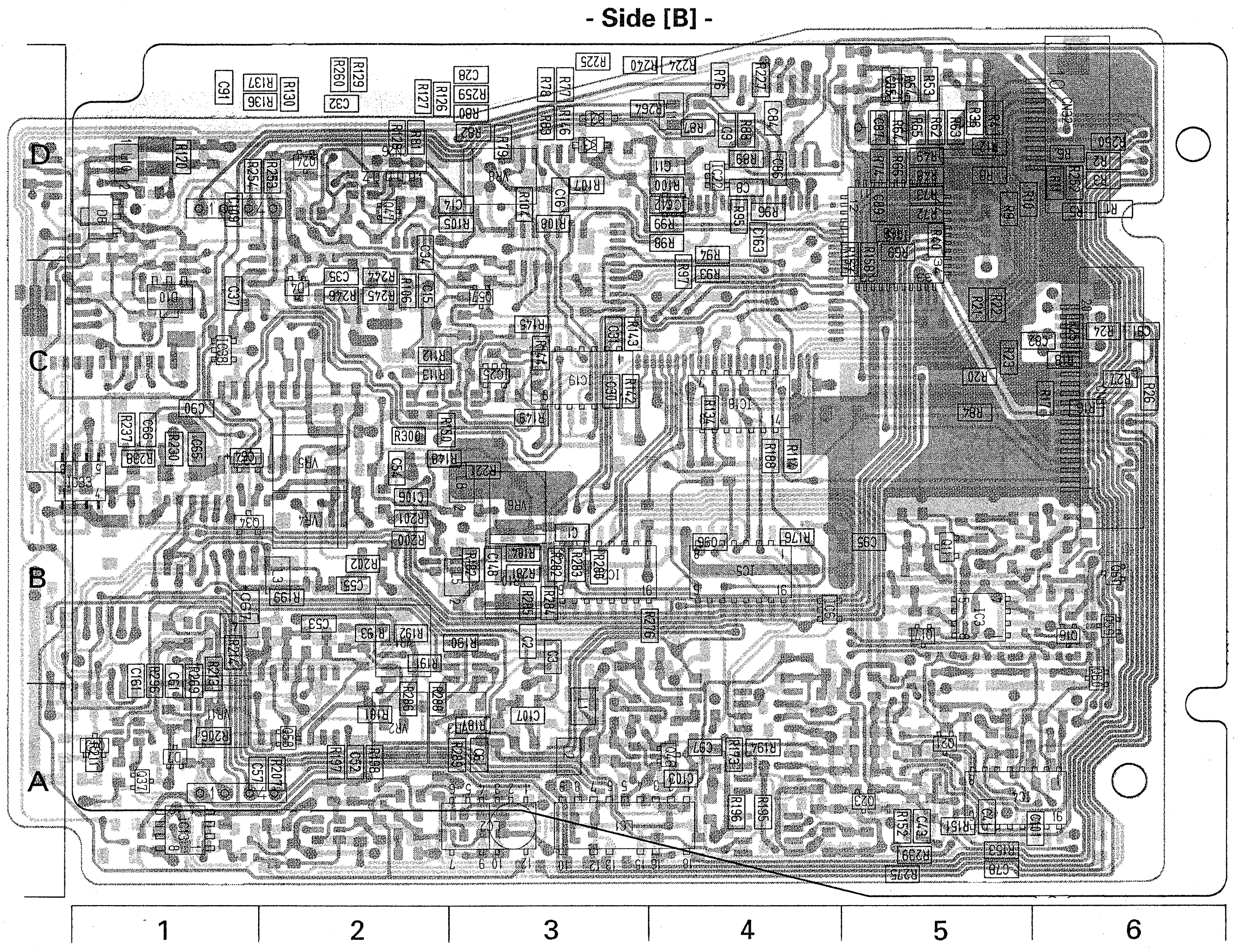


4.14 CC (Contour Corrector) SCHEMATIC DIAGRAM 0 9


Gray scale
H rate
IC1
pin 1
Sample
pulse
Gray scale
V-rate
Expanded V. blanking
V-rate with Delay
Gray scale
H-rate
0.53 Vp-p
Gray scale
H-rate
0.6 Vp-p
UNLESS OTHERWISE SPECIFIED
2SC3930(BC)
2SA1532(BC)
2SK662(QR)
CN36
FROM/To PR1 CN36
+9V IN
+5V IN
+5V IN
G CC IN
SAMPLE P IN
CP IN
CN33
FROM/To DR1 CN33
27MHZ IN
GND
NC
BGP IN
-5V IN
GND
GND
R(CC) IN
CC ON/OFF IN
5 Vp-p
5 Vp-p
5 Vp-p
VR1
G OUT GAIN
REF PULSE MIX
CLAMP
VC1
F.RESPONSE
IC1
RC1496MT2
MODULATOR
1H DELAY CIRCUIT
Q8,9,10
2SC3932
IH DELAY
IC2
VOLTAGE CONTROLED AMP
Q13,Q14 DEMODULATOR
(DC -0.8V 0.6Vp-p)
1H DELAYED G
2H DELAY CIRCUIT
CONTROL VOLTAGE FOR AGC AMP. FOR 1H DELAYED G SIGNAL
CONTROL VOLTAGE FOR AGC AMP. WHICH IS USED FOR CONTROLLING 2H DELAYED G SIGNAL
IC3.1
NJM062M
IC3.2
Q24,25,26
2SC3932
1H DELAY
NTSC:SCV1810
PAL: SCV1811
Q29,Q30 DEMODULATOR
VR2
VCC BAL
Q32 VCC GEN
CONTOUR= IH - (OH+2H)/2
VR3
V. LEVEL
2H DELAYED "G"
0H (ORIGINAL)
1H DELAYED G
VCC
H CONTOUR GENERATOR
VR4
H. LEVEL
IC2.2
IC4.2
IC6.2
UA733CNS
NEGATIVE FEED BACK AMP
DL2
SCV1253-001
1T DELAY
IC5.1
NJM062M
IC5.2
NJM062M
CP (CLAMP PULSE)
-5V LINE
(DC 1.3V)
(0.7Vp-p)
G CC OUT
D1,D2 NOISE SLICE
HSM88AS
IC6.1
UA733CNS
VR5
NOISE SLICE
VR6
M.CC LEVEL
VR7
LEVEL DEPEND
IC9
RC1496MT2
CONTROL VOLTAGE FOR "LEVEL DEPEND" CIRCUIT
CONTOUR ON: L OFF: H
DTC124EU
H & V CONTOUR SIGNAL
CC MIX OUT
CONTOUR LEVEL CONTROL
CC LEVEL CTL IN
HI-SENS CTL IN
NORM 0
+9dB 1.7
+18dB LOLUX 3.9
LEVEL DEPEND
NOISE SLICE
LEVEL DEPEND DETECT
TP1
TP2
TP3
TP4
TP5
92392

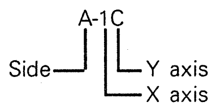
4.15 SE CIRCUIT BOARD





●ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.



IC1	B- 6C
IC2	B- 6C
IC3	A- 6C
IC4	A- 6D
IC5	A- 5C
IC6	A- 5C
IC7	B- 4D
IC8	B- 4D
IC9	B- 4D
IC10	B- 3C
IC11	B- 3C
IC12	B- 2C
IC13	A- 1D
IC14	B- 1C
IC15	A- 5A
IC16	B- 4B
IC17	B- 4A
IC18	A- 5B
IC19	A- 4B
IC20	A- 4C
IC21	A- 5A
IC22	A- 4A
IC23	B- 4A
IC24	B- 2C
IC25	A- 3B
IC26	B- 2B
IC27	B- 2B
IC28	B- 1B
IC29	B- 2D
IC30	B- 2D
IC31	B- 1A
IC32	B- 2C
IC33	A- 1C
IC34	A- 4A
IC35	B- 2D
IC37	B- 1B
IC38	A- 2B
IC39	B- 3B
IC40	B- 3B
Q1	B- 6C
Q2	B- 6C
Q3	B- 5D
Q4	B- 6C
Q5	B- 6C
Q6	B- 5D
Q7	B- 5C
Q8	B- 6C
Q9	B- 5D
Q10	B- 5C
Q11	A- 5C
Q12	B- 5C
Q13	B- 6C
Q14	B- 6C
Q15	B- 6C
Q16	A- 6C
Q17	A- 5C
Q18	B- 6C
Q19	B- 6C
Q20	B- 5D
Q21	A- 5D
Q22	B- 5D
Q23	A- 5D
Q24	A- 2A
Q25	B- 3B
Q26	B- 2A
Q28	B- 3D
Q29	B- 2D
Q30	B- 4D
Q31	B- 4D
Q32	B- 3D
Q33	B- 3D
Q34	A- 2C
Q35	A- 2B
Q36	B- 1D
Q37	A- 1D
Q38	B- 2D
Q39	B- 2D
Q40	B- 4D
Q41	B- 3C
Q42	B- 3C
Q43	A- 1D
Q44	B- 4D
Q45	B- 3B
Q46	A- 4D
Q47	A- 3A
Q48	B- 3B
Q49	B- 2B
Q50	B- 2B
Q51	B- 2B
Q57	A- 3B
Q58	A- 2D
Q59	A- 6C
Q60	A- 6D
Q61	A- 6C
D1	B- 5A
D2	A- 4A
D3	A- 4A
D4	A- 2B
D5	B- 5A
D6	B- 1D
D7	A- 1D
D8	A- 1A
D9	B- 1B
D10	A- 1B
R1	B- 6D
R2	B- 6D
R3	B- 6D
R4	B- 5D
R5	B- 6D
R6	B- 6D
R7	A- 6D
R8	B- 5D
R9	B- 5D
R10	B- 6D
R11	B- 6D
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R19	A- 5C
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R22	B- 5C
R23	B- 5C
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R26	B- 6C
R27	B- 6C
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R32	A- 5C
R33	A- 5C
R34	A- 5C
R35	A- 5C
R36	B- 5D
R37	A- 5D
R38	A- 5D
R39	A- 5D
R40	B- 5D
R41	A- 5D
R42	A- 5D
R43	A- 5D
R44	A- 5D
R45	A- 5D
R46	A- 5D
R47	A- 5D
R48	B- 5D
R49	B- 5D
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R51	A- 5D
R52	A- 5D
R53	B- 5D
R54	B- 5D
R55	A- 5D
R56	A- 5D
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R61	A- 5D
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R63	B- 5D
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R65	B- 5D
R66	B- 5D
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R72	B- 5D
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R74	B- 5D
R75	A- 4D
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R78	B- 3D
R79	B- 3D
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R82	B- 3D
R83	B- 3D
R84	B- 5C
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R87	B- 4D
R88	B- 4D
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R90	A- 4D
R91	A- 4C
R92	A- 3D
R93	B- 4C
R94	B- 4D
R95	B- 4D
R96	B- 4D
R97	B- 4C
R98	B- 4D
R99	B- 4D
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R102	A- 4D
R103	A- 3D
R104	B- 3D
R105	B- 3D
R106	B- 2C
R107	B- 3D
R108	B- 3D
R109	A- 3C
R110	A- 2D
R111	A- 3D
R112	B- 2C
R113	B- 2C
R114	B- 4C
R115	A- 2B
R116	A- 1C
R117	A- 1C
R118	A- 1D
R119	A- 1D
R120	B- 1D
R121	A- 1D
R122	A- 1D
R123	A- 1D
R124	A- 1D
R125	A- 1C
R126	B- 2D
R127	B- 2D
R128	B- 2D
R129	B- 2D
R130	B- 2D
R131	A- 2D
R132	A- 2D
R133	A- 2D
R134	B- 4C
R135	A- 2D
R136	B- 2D
R137	B- 2D
R138	A- 1D
R139	A- 6C
R140	A- 6C
R141	A- 6C
R142	B- 3C
R143	B- 3C
R144	B- 3C
R145	B- 3C
R146	B- 3D
R147	A- 3C
R148	B- 2C
R149	B- 3C
R150	B- 3C
R151	B- 5A
R152	B- 5A
R153	B- 5A
R154	A- 4A
R155	A- 5A
R156	A- 4D
R157	B- 5C
R158	B- 5C
R159	A- 4A
R160	A- 4A
R162	A- 5A
R163	A- 4A
R164	A- 4A
R165	A- 3A
R166	A- 1D
R167	A- 1C
R168	A- 4A
R169	A- 4A
R170	A- 4A
R171	A- 4A
R172	A- 4A
R173	B- 4A
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R193	B- 2B
R194	B- 4A
R195	B- 4A
R196	B- 4A
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R198	B- 2A
R199	B- 2B
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R202	B- 2B
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R205	A- 1A
R206	B- 1A
R207	B- 2A
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R214	B- 1B
R216	A- 1B
R217	A- 1B
R221	B- 3B
R222	A- 6A
R223	A- 6A
R224	B- 4D
R225	B- 3D
R226	A- 4D
R227	B- 4D
R228	A- 6D
R229	A- 2D
R230	B- 1C
R231	A- 2C
R232	A- 1B
R233	A- 1C
R236	A- 4A
R237	B- 1C
R238	B- 1C
R239	B- 5A
R240	B- 4D
R241	A- 2D
R242	A- 1D
R243	A- 2D
R244	B- 2C
R245	B- 2C
R246	B- 2C
R247	A- 2D
R250	B- 6D
R251	A- 6D
R252	B- 6D
R253	B- 2D
R254	B- 2D
R255	A- 5D
R256	A- 5D
R257	A- 5D
R258	A- 5D
R259	B- 3D
R260	B- 2D
R261	A- 1D
R262	A- 1D
R264	B- 4D
R265	A- 2B
R266	A- 3B
R268	A- 1A
R269	B- 1A
R270	A- 1B
R271	A- 4A
R272	A- 4B
R273	A- 3B
R274	A- 4B
R275	B- 5A
R276	B- 4B
R277	A- 1C
R278	A- 4A
R279	A- 1C
R280	B- 3B
R281	B- 3B
R282	B- 3B
R283	B- 3B
R284	B- 3B
R285	B- 3B
R286	B- 2A
R287	A- 3A
R288	B- 2A
R289	B- 3A
R290	A- 1B
R291	A- 1B
R292	A- 2B
R293	A- 2A
R294	A- 2B
R295	A- 1A
R297	A- 1A
R298	A- 2B
R299	A- 2B
R300	B- 2C
VR1	A- 3C
VR2	A- 3D
VR3	A- 3D
VR4	A- 2C
VR5	A- 2C
VR6	A- 3C
VR7	A- 6A
VR8	A- 3A
VR10	A- 3C
VR11	A- 2D
C1	B- 3B
C2	B- 3B
C3	B- 3B
C4	A- 5D
C5	A- 4D
C6	B- 3A
C8	B- 4D
C9	B- 4D
C10	A- 3D
C11	B- 4D
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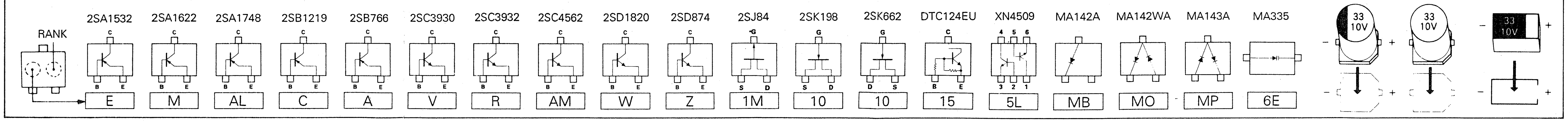
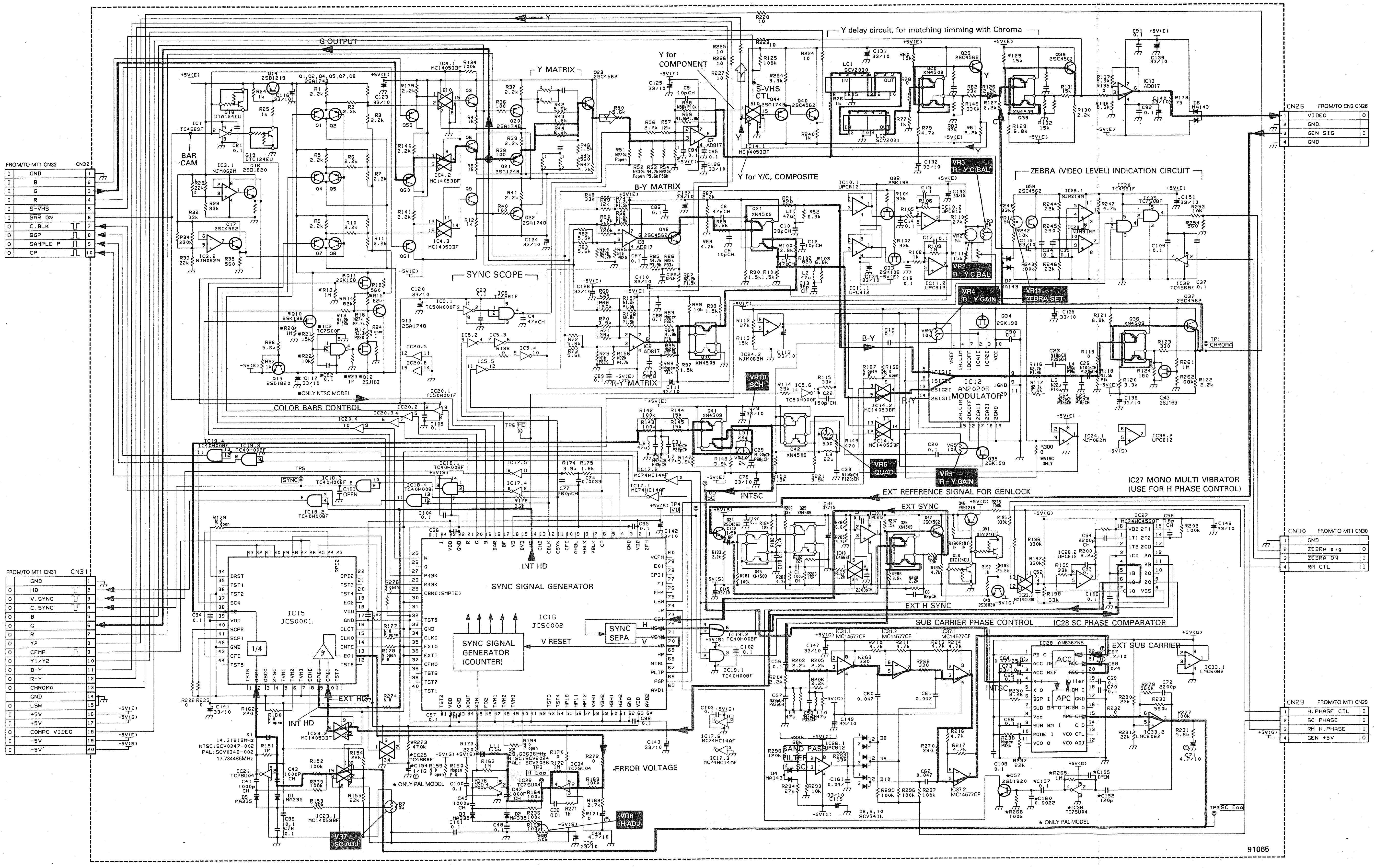
C13	A- 3D
C14	B- 3D
C15	B- 2C
C16	B- 3D
C17	A- 3C
C18	A- 2C
C19	A- 5D
C20	A- 2C
C21	A- 5D
C22	A- 2C
C23	A- 2C
C24	A- 2C
C25	A- 2C
C26	A- 1D
C28	B- 3D
C29	A- 3C
C30	B- 3C
C31	B- 3C
C32	B- 2D
C33	A- 3C
C34	B- 2D
C35	B- 2C
C36	A- 3A
C37	B- 1C
C39	A- 4A
C41	B- 5A
C43	B- 5A
C45	A- 4A
C47	A- 4A
C48	A- 3A
C49	A- 3A
C52	B- 2A
C53	B- 2B
C54	B- 2B
C55	B- 2B
C56	A- 2A
C57	B- 2A
C58	A- 1A
C60	A- 1A
C61	B- 1A
C62	A- 1B
C64	B- 1C
C65	B- 1C
C66	B- 1C
C67	B- 1B
C68	A- 1B
C69	A- 1B
C70	A- 1B
C71	A- 1B
C72	A- 1B
C73	A- 2B
C74	A- 4B
C76	A- 3B
C77	A- 3B
C78	B- 5A
C79	A- 3B
C81	B- 6C
C82	B- 6C
C83	A- 5C
C84	B- 4D
C85	B- 5D
C86	B- 4D
C87	B- 5D
C88	A- 4D
C89	B- 5D
C90	B- 1C
C91	B- 1D
C92	A- 2D
C93	A- 5B
C94	A- 6B
C95	B- 5B
C96	B- 4B
C97	B- 4A
C98	A- 5A
C99	A- 5A
C100	A- 4A
C101	B- 6A
C102	A- 4B
C103	B- 4A
C104	A- 4C
C105	A- 4C
C106	B- 2B
C107	B- 3A
C108	A- 2B
C109	B- 1D
C110	A- 4D
C111	A- 4C
C112	A- 2A
C113	A- 2C
C115	A- 2D
C116	A- 5D
C117	A- 6C
C119	A- 2B
C120	A- 5C
C123	A- 6D
C124	A- 6D
C125	A- 5C
C126	A- 5C
C127	A- 4D
C128	A- 4C
C131	A- 3D
C132	A- 3D
C133	A- 2C
C134	A- 3D
C135	A- 3C
C136	A- 3C
C139	A- 2D
C140	A- 2D
C141	A- 5A
C142	A- 3A
C143	A- 4B
C144	A- 3A
C145	A- 2B
C146	A- 3B
C147	A- 3B
C148	B- 3B
C149	A- 2B
C150	A- 4B
C151	A- 2D
C152	A- 2B
C154	A- 3B
C155	A- 2B
C157	A- 3B
C160	A- 3B
C161	B- 1A
C162	A- 4D
C163	B- 4D
L1	A- 4D
L2	A- 3D
L3	A- 2C
L4	A- 2C
L5	A- 3C
L6	B- 3C
L7	B- 3C
L8	A- 3C
L9	B- 1A
L10	A- 1A
L11	A- 4A
TP1	A- 1D
TP2	A- 2C
TP3	A- 4A
TP4	A- 4B
TP5	A- 5B
TP6	A- 4C
TP7	A- 1C
X1	A- 5A
X2	A- 4A
CN26	A- 3A
CN29	A- 2A
CN30	A- 2D
CN31	A- 6B
CN32	A- 6A
LC1	A- 4D
LC2	A- 3D

Chip parts pin arrangement (Top view)



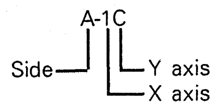
4.16 SE (Sync signal generator and color Encoder) SCHEMATIC DIAGRAM 1 0


G OUTPUT
Y MATRIX
Y for COMPONENT
S-VHS CTL
Y for Y/C, COMPOSITE
Y delay circuit, for mutching timming with Chroma
B-Y MATRIX
R-Y MATRIX
SYNC SCOPE
COLOR BARS CONTROL
BAR CAM
ZEBRA (VIDEO LEVEL) INDICATION CIRCUIT
VR3 R-Y C BAL
VR2 B-Y C BAL
VR4 B-Y GAIN
VR11 ZEBRA SET
VR10 SCH
VR6 QUAD
VR5 R-Y GAIN
VR8 H ADJ
V37 SC ADJ
IC12 AN20205 MODULATOR
TP1 CHROMA
IC27 MONO MULTI VIBRATOR (USE FOR H PHASE CONTROL)
EXT REFERENCE SIGNAL FOR GENLOCK
EXT SYNC
EXT H SYNC
SUB CARRIER PHASE CONTROL
IC28 SC PHASE COMPARATOR
EXT SUB CARRIER
IC28 AN6367NS
ACC
APC
BAND PASS FILTER (f SC)
INTSC
IC15 JCS0001
IC16 JCS0002
SYNC SIGNAL GENERATOR
SYNC SIGNAL GENERATOR (COUNTER)
SYNC SEPA
V RESET
INT HD
EXT HD
ERROR VOLTAGE
★ ONLY PAL MODEL
■ONLY NTSC MODEL
14.31818MHz NTSC:SCV0347-002 PAL:SCV0348-002 17.734485MHz
28.63636MHz NTSC:SCV2024 PAL:SCV2026
FROM/TO MT1 CN32
CN32
I GND 1
I B 2
I G 3
I R 4
I S-VHS 5
I BAR ON 6
O C.BLK 7
O BGP 8
O SAMPLE P 9
O CP 10
FROM/TO MT1 CN31
CN31
GND 1
O HD 2
O V.SYNC 3
O C.SYNC 4
O B 5
O G 6
O R 7
O Y2 8
O CFMP 9
O Y1/Y2 10
O B-Y 11
O R-Y 12
O CHROMA 13
O GND 14
O LSW 15
I +5V 16
I +5V 17
O COMPO VIDEO 18
I -5V 19
I -5V' 20
CN26 FROM/TO CN2 CN26
1 VIDEO O
2 GND
3 GEN SIG I
4 GND
CN30 FROM/TO MT1 CN30
1 GND
2 ZEBRA sig O
3 ZEBRA ON I
4 RM CTL I
CN29 FROM/TO MT1 CN29
1 H.PHASE CTL I
2 SC PHASE I
3 RM H.PHASE I
4 GEN +5V O
91065

4.17 CP1/CP2 CIRCUIT BOARDS

●ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.

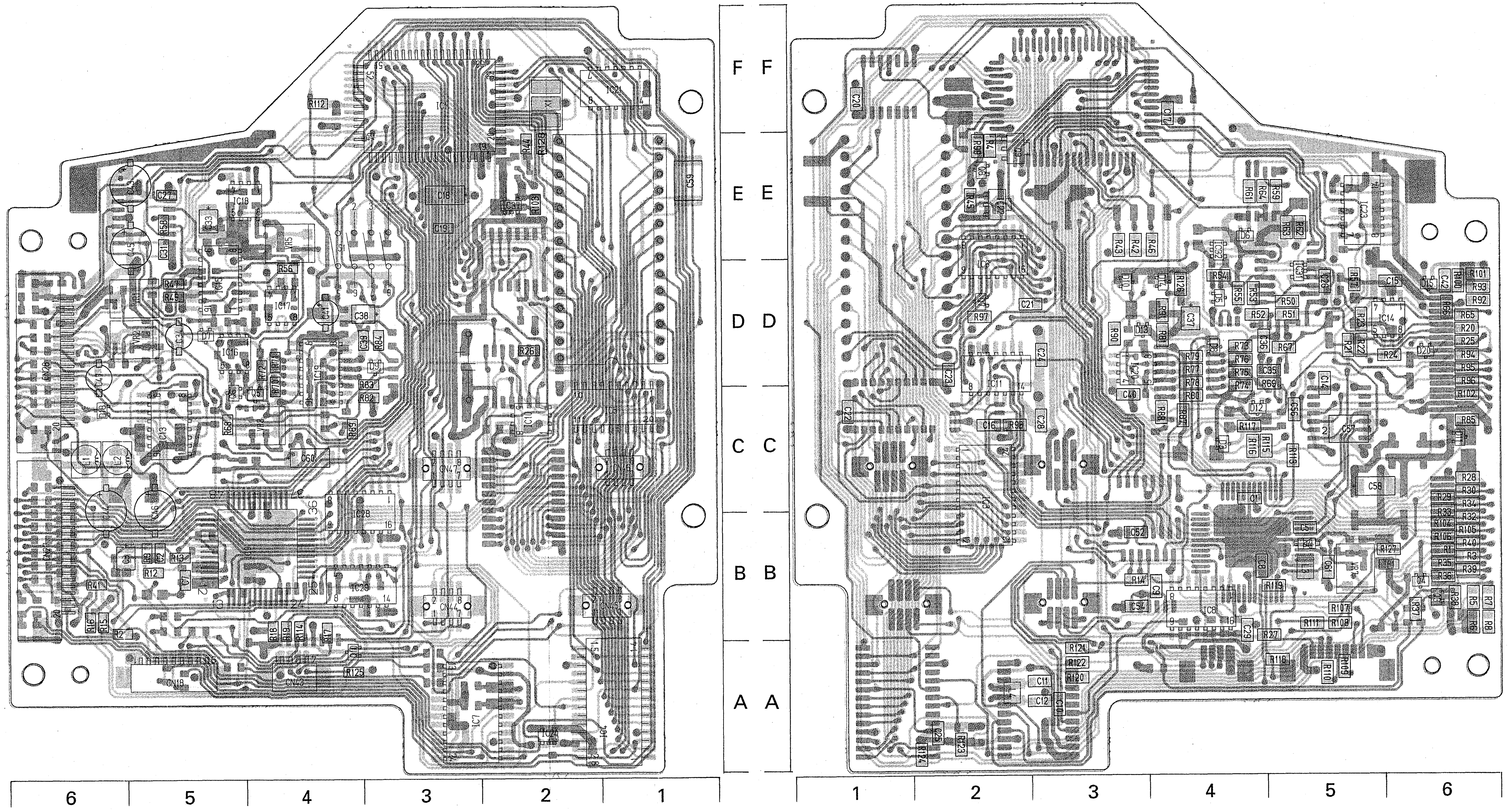

A-1C
Side
Y axis
X axis

Part	Address
IC1	A- 3F
IC2	A- 1D
IC3	B- 2C
IC4	A- 1A
IC5	A- 1C
IC6	B- 2E
IC7	A- 3A
IC8	B- 4B
IC9	A- 4B
IC10	A- 2C
IC11	B- 2D
IC13	A- 5C
IC14	B- 6D
IC15	A- 5D
IC16	A- 4D
IC17	A- 4D
IC18	A- 4E
IC19	A- 4C
IC20	B- 3D
IC21	A- 1F
IC22	B- 2E
IC23	B- 5E
IC24	A- 2A
IC28	A- 3C
IC29	A- 3B
IC31	B- 5D
IC32	B- 4E
IC37	A- 2E
Q3	B- 6B
Q4	B- 6B
Q5	A- 4C
Q6	A- 5C
Q7	B- 2D
Q8	B- 2E
Q9	B- 2E
Q10	A- 4A
D3	B- 4C
D4	B- 5B
D5	B- 4D
D6	B- 4E
D7	A- 5D
D8	B- 4D
D9	A- 3D
D10	B- 3D
D11	B- 6C
D12	B- 4C
D13	B- 3D
D14	B- 4D
D15	B- 6D
D18	A- 6C
D20	B- 6D
R1	B- 6B
R2	A- 6B
R3	B- 6B
R4	B- 2E
R5	B- 6B
R6	B- 6B
R7	B- 6B
R8	B- 6B
R9	A- 5B
R12	A- 5B
R13	A- 5B
R14	B- 3B
R15	A- 6B
R16	A- 6B
R17	A- 4B
R18	A- 4B
R19	A- 4B
R20	B- 6D
R21	B- 5D
R22	B- 5D
R23	B- 5D
R24	B- 6D
R25	B- 6D
R26	A- 2D
R27	B- 4B
R28	B- 6C
R29	B- 6C
R30	B- 6C
R32	B- 6B
R33	B- 6C
R34	B- 6C
R35	B- 6B
R36	B- 6B
R37	B- 6B
R38	B- 6B
R39	B- 6B
R40	B- 6B
R41	A- 6B
R42	B- 3E
R43	B- 3E
R44	A- 2E
R45	B- 2E
R46	B- 4E
R47	A- 5D
R49	A- 5D
R50	B- 5D
R51	B- 5D
R52	B- 4D
R53	B- 4D
R54	B- 4D
R55	B- 4D
R56	A- 4D
R57	B- 5D
R58	A- 5E
R59	B- 5E
R61	B- 4E
R62	B- 5E
R63	B- 5E
R64	B- 4E
R65	B- 6D
R66	B- 6D
R67	B- 5D
R68	A- 5C
R69	B- 5C
R70	A- 4D
R71	A- 4D
R72	A- 4D
R73	B- 4D
R74	B- 4C
R75	B- 4D
R76	B- 4D
R77	B- 4D
R78	B- 4C
R79	B- 4D
R80	B- 4C
R81	B- 4D
R82	A- 3C
R83	A- 3D
R84	A- 3D
R85	B- 6C
R87	B- 4C
R88	B- 4C
R89	A- 4C
R90	B- 3D
R91	B- 4D
R92	B- 6D
R93	B- 6D
R94	B- 6D
R95	B- 6D
R96	B- 6C
R97	B- 2D
R98	B- 2C
R99	B- 2E
R100	B- 6D
R101	B- 6D
R102	B- 6C
R103	A- 2E
R104	B- 6B
R105	B- 6B
R106	B- 6B
R107	B- 5B
R108	B- 5B
R109	B- 5A
R110	B- 5A
R111	B- 5B
R112	A- 4F
R113	B- 5C
R114	A- 4B
R115	B- 4C
R116	B- 4C
R117	B- 4C
R118	B- 5A
R119	B- 5B
R120	B- 3A
R121	B- 3A
R122	B- 3A
R123	B- 2A
R124	B- 2A
R125	A- 4A
R126	B- 4D
R127	B- 6B
R128	A- 2E
VR1	A- 5D
VR2	A- 5D
VR3	A- 4C
VR5	A- 4E
VR7	B- 5B
C1	B- 4C
C2	A- 5B
C3	A- 5B
C5	B- 5B
C7	A- 5B
C8	B- 4B
C9	B- 4B
C10	B- 3A
C11	B- 3A
C12	B- 3A
C14	B- 5C
C15	B- 6D
C16	B- 2C
C17	B- 4F
C18	A- 3E
C19	A- 3E
C20	B- 1F
C21	B- 3D
C22	B- 1C
C23	B- 2D
C24	B- 3D
C25	B- 2A
C26	B- 5D
C27	A- 5E
C28	B- 3C
C29	B- 4B
C31	A- 5E
C33	A- 5E
C34	A- 5D
C35	B- 5D
C36	B- 4D
C37	B- 4D
C38	A- 3D
C39	A- 3D
C40	B- 3C
C41	A- 4D
C42	B- 6D
C43	A- 5E
C44	A- 6C
C45	A- 5E
C46	A- 5C
C47	A- 6D
C52	B- 3B
C53	A- 3C
C54	B- 3B
C56	B- 5C
C57	B- 5C
C58	B- 5C
C59	A- 1E
C60	A- 4C
C61	B- 5B
L1	A- 6C
L2	A- 6C

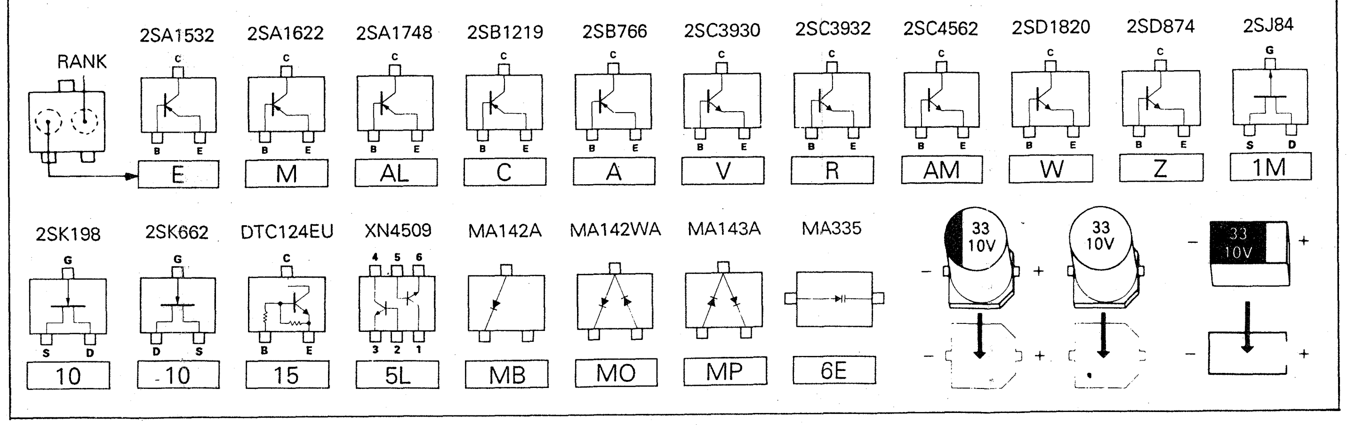
• CP1

- Side [A] -

- Side [B] -


F
E
D
C
B
A
6
5
4
3
2
1
1
2
3
4
5
6

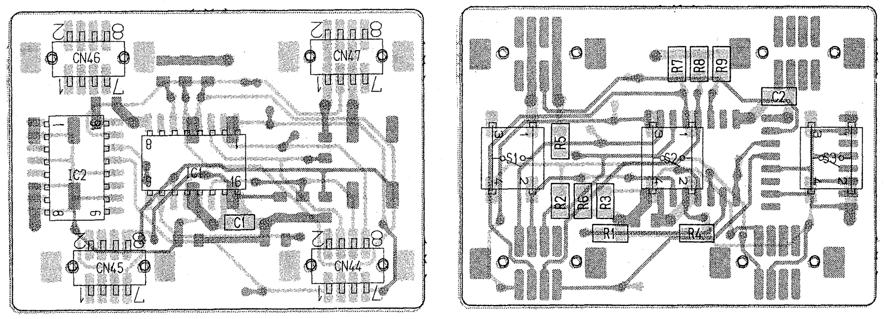
Chip parts pin arrangement (Top view)


RANK
2SA1532
E
2SA1622
M
2SA1748
AL
2SB1219
C
2SB766
A
2SC3930
V
2SC3932
R
2SC4562
AM
2SD1820
W
2SD874
Z
2SJ84
1M
2SK198
10
2SK662
-10
DTC124EU
15
XN4509
5L
MA142A
MB
MA142WA
MO
MA143A
MP
MA335
6E
33
10V
33
10V
33
10V

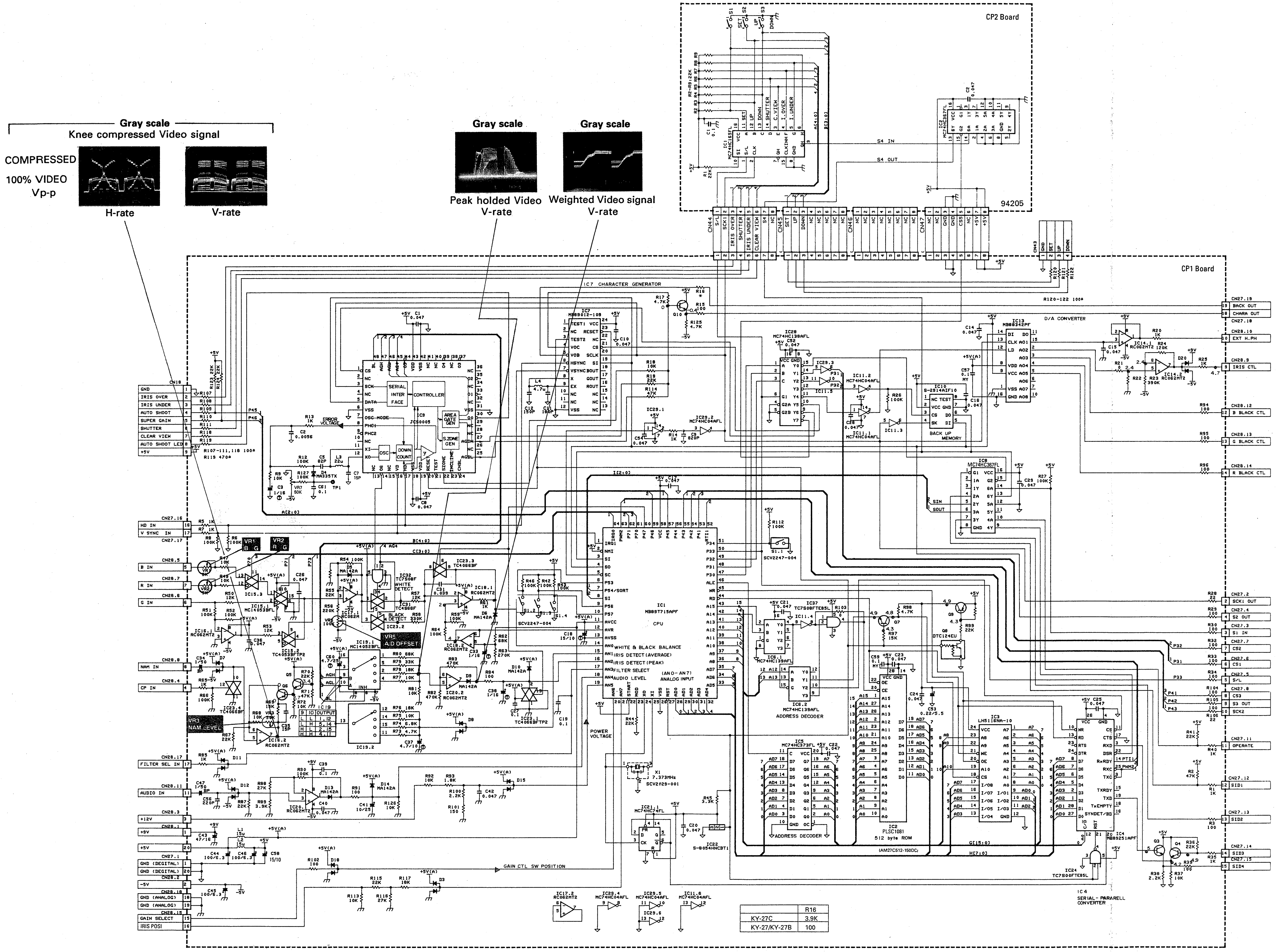
• CP2

- Side [A] -

- Side [B] -


CN46
CN47
IC2
IC1
C1
CN45
CN44
R7
R8
R9
C2
R5
S1
S2
S3
R2
R3
R1
R4

4.18 CP1/CP2 (CPu) SCHEMATIC DIAGRAMS 11/12



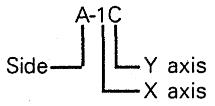
Gray scale
Knee compressed Video signal
COMPRESSED
100% VIDEO
Vp-p
H-rate
V-rate
Gray scale
Peak holded Video
V-rate
Gray scale
Weighted Video signal
V-rate
CP2 Board
94205
CP1 Board
IC7 CHARACTER GENERATOR
IC1 MB89715APF CPU
WHITE & BLACK BALANCE
IRIS DETECT (AVERAGE)
IRIS DETECT (PEAK)
FILTER SELECT
AUDIO LEVEL
(AN0-AN7) ANALOG INPUT
POWER VOLTAGE
D/A CONVERTER
BACK UP MEMORY
ADDRESS DECODER
512 byte ROM
IC4 SERIAL-PARARELL CONVERTER
GAIN CTL SW POSITION
VR1 B G
VR2 R G
VR3 NAM LEVEL
VR5 A/D OFFSET
GND
IRIS OVER
IRIS UNDER
AUTO SHOOT
SUPER GAIN
SHUTTER
CLEAR VIEW
AUTO SHOOT LED
+5V
HD IN
V SYNC IN
B IN
R IN
G IN
NAM IN
CP IN
FILTER SEL IN
AUDIO IN
+12V
-5V
GND (DEGITAL)
GND (ANALOG)
GAIN SELECT
IRIS POSI
BACK OUT
CHARA OUT
EXT H.PH
IRIS CTL
B BLACK CTL
G BLACK CTL
R BLACK CTL
SCK1 OUT
S2 OUT
S1 IN
CS2
CS1
S/L
CS3
S3 OUT
SCK2
OPERATE
SID1
SID2
SID3
SID4

	R16
KY-27C	3.9K
KY-27/KY-27B	100

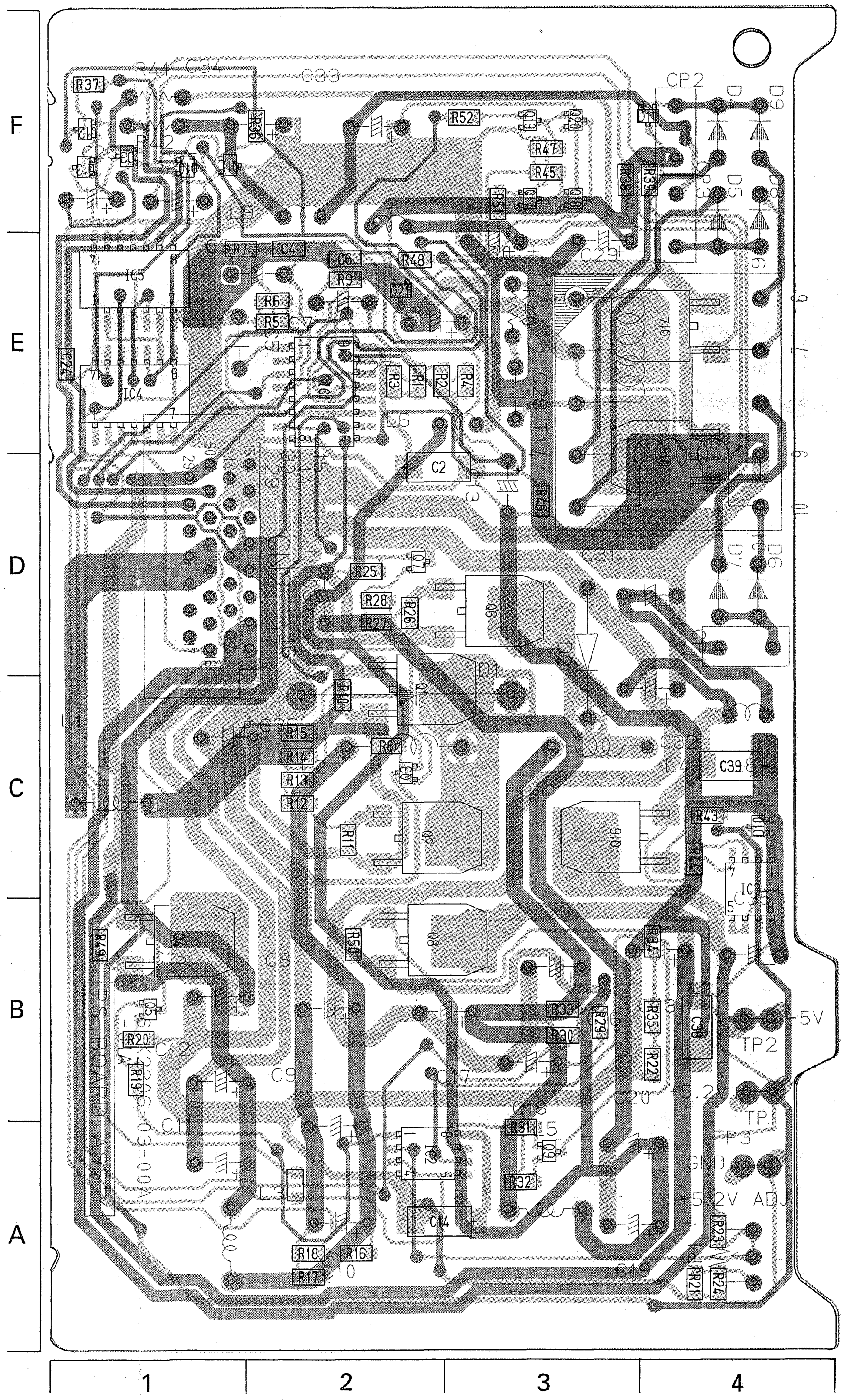
4.19 PS CIRCUIT BOARD

●ADDRESS TABLE OF BOARD PARTS

Each address may have an address error by one interval.

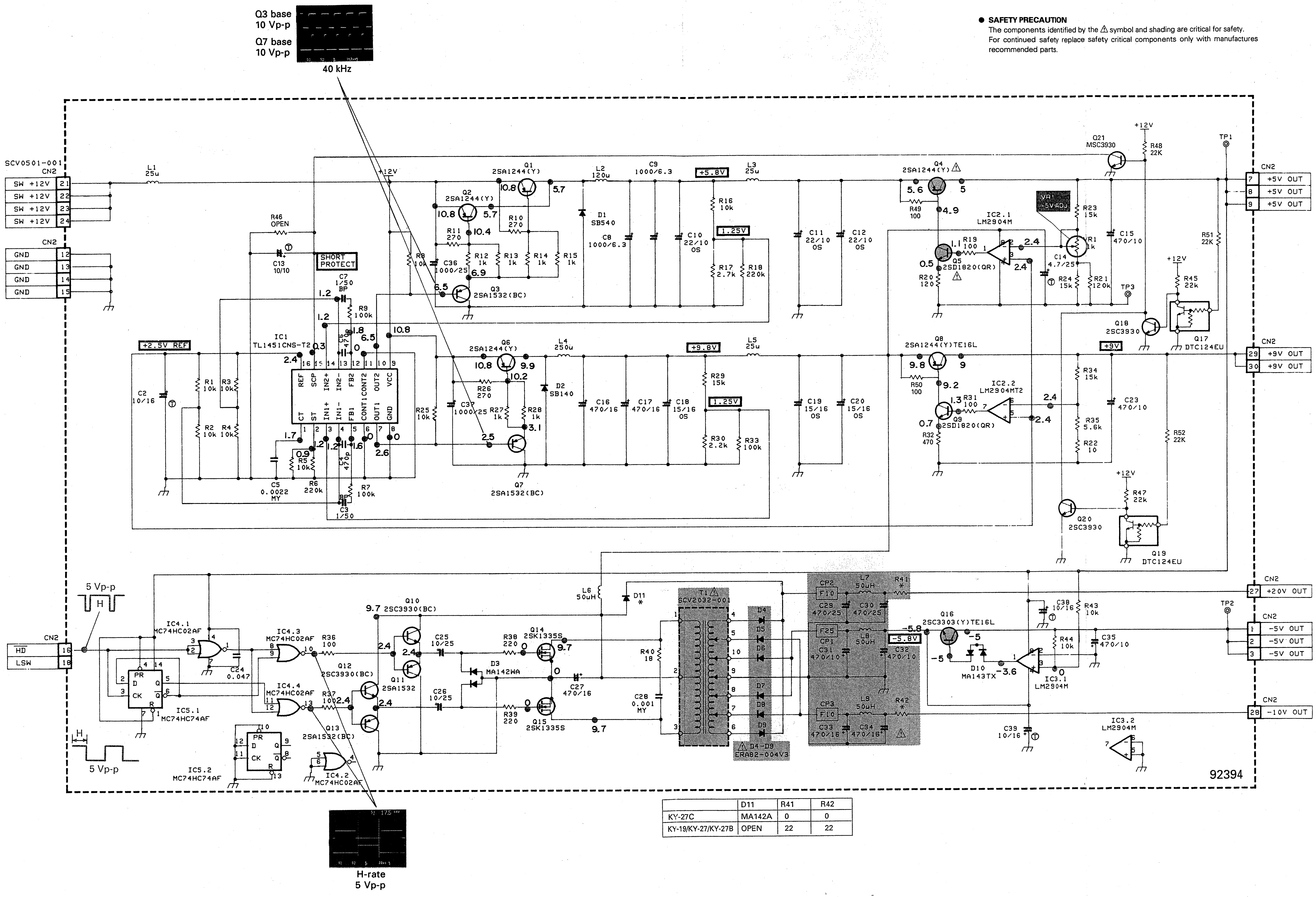


IC1	2E
IC2	2A
IC3	4C
IC4	1E
IC5	1E
Q1	2C
Q2	2C
Q3	2C
Q4	1B
Q5	1B
Q6	3D
Q7	2D
Q8	2B
Q9	3A
Q10	1F
Q11	1F
Q12	1F
Q13	1F
Q14	4E
Q15	4D
Q16	3C
Q17	3F
Q18	3F
Q19	3F
Q20	3F
Q21	2E
D1	3C
D2	3C
D3	1F
D4	4F
D5	4F
D6	4D
D7	4D
D8	4F
D9	4F
D10	4C
D11	4F
R1	2E
R2	3E
R3	2E
R4	3E
R5	2E
R6	2E
R7	2E
R8	2C
R9	2E
R10	2C
R11	2C
R12	2C
R13	2C
R14	2C
R15	2C
R16	2A
R17	2A
R18	2A
R19	1B
R20	1B
R21	4A
R22	4B
R23	4A
R24	4A
R25	2D
R26	2D
R27	2D
R28	2D
R29	3B
R30	3B
R31	3A
R32	3A
R33	3B
R34	4B
R35	4B
R36	2F
R37	1F
R38	3F
R39	4F
R40	3E
R41	1F
R42	1F
R43	4C
R44	4C
R45	3F
R46	3D
R47	3F
R48	2E
R49	1B
R50	2B
R51	3F
R52	3F
VR1	4A
C2	3D
C3	2E
C4	2E
C5	2E
C6	2E
C7	2E
C8	2B
C9	2A
C10	2A
C11	2A
C12	2B
C13	3D
C14	3A
C15	2B
C16	3B
C17	3B
C18	3B
C19	4A
C20	4A
C23	4B
C24	1E
C25	1F
C26	1F
C27	3E
C28	3E
C29	3E
C30	3E
C31	4D
C32	4C
C33	2F
C34	2F
C35	4B
C36	1C
C37	2D
C38	4B
C39	4C
L1	1C
L2	2C
L3	1A
L4	4C
L5	3A
L6	3E
L7	2E
L8	4C
L9	2F
TP1	4B
TP2	4B
TP3	4A
CP1	4D
CP2	4F
CP3	4F
CN2	2D
T1	3E



4.20 PS (Power Supply) SCHEMATIC DIAGRAM 1 3

- **SAFETY PRECAUTION**
  The components identified by the ⚠ symbol and shading are critical for safety.
  For continued safety replace safety critical components only with manufactures recommended parts.


Q3 base
10 Vp-p
Q7 base
10 Vp-p
40 kHz
SCV0501-001
CN2
SW +12V 21
SW +12V 22
SW +12V 23
SW +12V 24
GND 12
GND 13
GND 14
GND 15
L1 25u
R46 OPEN
C13 10/10
SHORT PROTECT
C7 1/50 BP
R9 100k
IC1 TL1451CNS-T2
+2.5V REF
REF SCP IN2+ IN2- FB2 CONT2 OUT2 VCC
CT ST IN1+ IN1- FB1 CONT1 OUT1 GND
C2 10/16
R1 10k
R3 10k
R2 10k
R4 10k
C5 0.0022 MY
R5 10k
R6 220k
C4 470p
R7 100k
C3 1/50 BP
C6 470p
R8 10k
C36 1000/25
R25 10k
Q1 2SA1244(Y)
Q2 2SA1244(Y)
Q3 2SA1532(BC)
R10 270
R11 270
R12 1k
R13 1k
R14 1k
R15 1k
L2 120u
D1 SB540
C8 1000/6.3
C9 1000/6.3
+5.8V
L3 25u
R16 10k
C10 22/10 OS
1.25V
R17 2.7k
R18 220k
C11 22/10 OS
C12 22/10 OS
Q6 2SA1244(Y)
Q7 2SA1532(BC)
R26 270
R27 1k
R28 1k
C37 1000/25
L4 250u
D2 SB140
C16 470/16
C17 470/16
C18 15/16 OS
+9.8V
L5 25u
R29 15k
1.25V
R30 2.2k
R33 100k
C19 15/16 OS
C20 15/16 OS
+12V
Q21 MSC3930
R48 22K
TP1
Q4 2SA1244(Y)
R49 100
IC2.1 LM2904M
VR1 5V ADJ
R23 15k
VR1 1k
C15 470/10
R19 100
Q5 2SD1820(QR)
R20 120
C14 4.7/25
R24 15k
R21 120k
TP3
R51 22K
R45 22k
Q18 2SC3930
Q17 DTC124EU
CN2
7 +5V OUT
8 +5V OUT
9 +5V OUT
Q8 2SA1244(Y)TE16L
+9V
R50 100
IC2.2 LM2904MT2
R31 100
Q9 2SD1820(QR)
R32 470
R34 15k
C23 470/10
R35 5.6k
R22 10
R52 22K
R47 22k
Q20 2SC3930
Q19 DTC124EU
29 +9V OUT
30 +9V OUT
5 Vp-p
H
HD 16
LSW 18
IC4.1 MC74HC02AF
C24 0.047
IC5.1 MC74HC74AF
PR D CK R Q
IC5.2 MC74HC74AF
IC4.3 MC74HC02AF
R36 100
IC4.4 MC74HC02AF
R37 100
IC4.2 MC74HC02AF
Q10 2SC3930(BC)
Q12 2SC3930(BC)
Q11 2SA1532
Q13 2SA1532(BC)
C25 10/25
C26 10/25
R38 220
R39 220
Q14 2SK1335S
Q15 2SK1335S
D3 MA142WA
C27 470/16
C28 0.001 MY
L6 50uH
D11 *
R40 18
T1 SCV2032-001
D4 D5 D6 D7 D8 D9
D4-D9 ERA82-004V3
CP2 F10
L7 50uH
R41 *
C29 470/25
C30 470/25
CP1 F25
L8 50uH
C31 470/10
C32 470/10
-5.8V
CP3 F10
L9 50uH
R42 *
C33 470/16
C34 470/16
Q16 2SC3303(Y)TE16L
D10 MA143TX
C38 10/16
R43 10k
R44 10k
C35 470/10
IC3.1 LM2904M
C39 10/16
IC3.2 LM2904M
TP2
27 +20V OUT
1 -5V OUT
2 -5V OUT
3 -5V OUT
28 -10V OUT
92394
H-rate
5 Vp-p

	D11	R41	R42
KY-27C	MA142A	0	0
KY-19/KY-27/KY-27B	OPEN	22	22

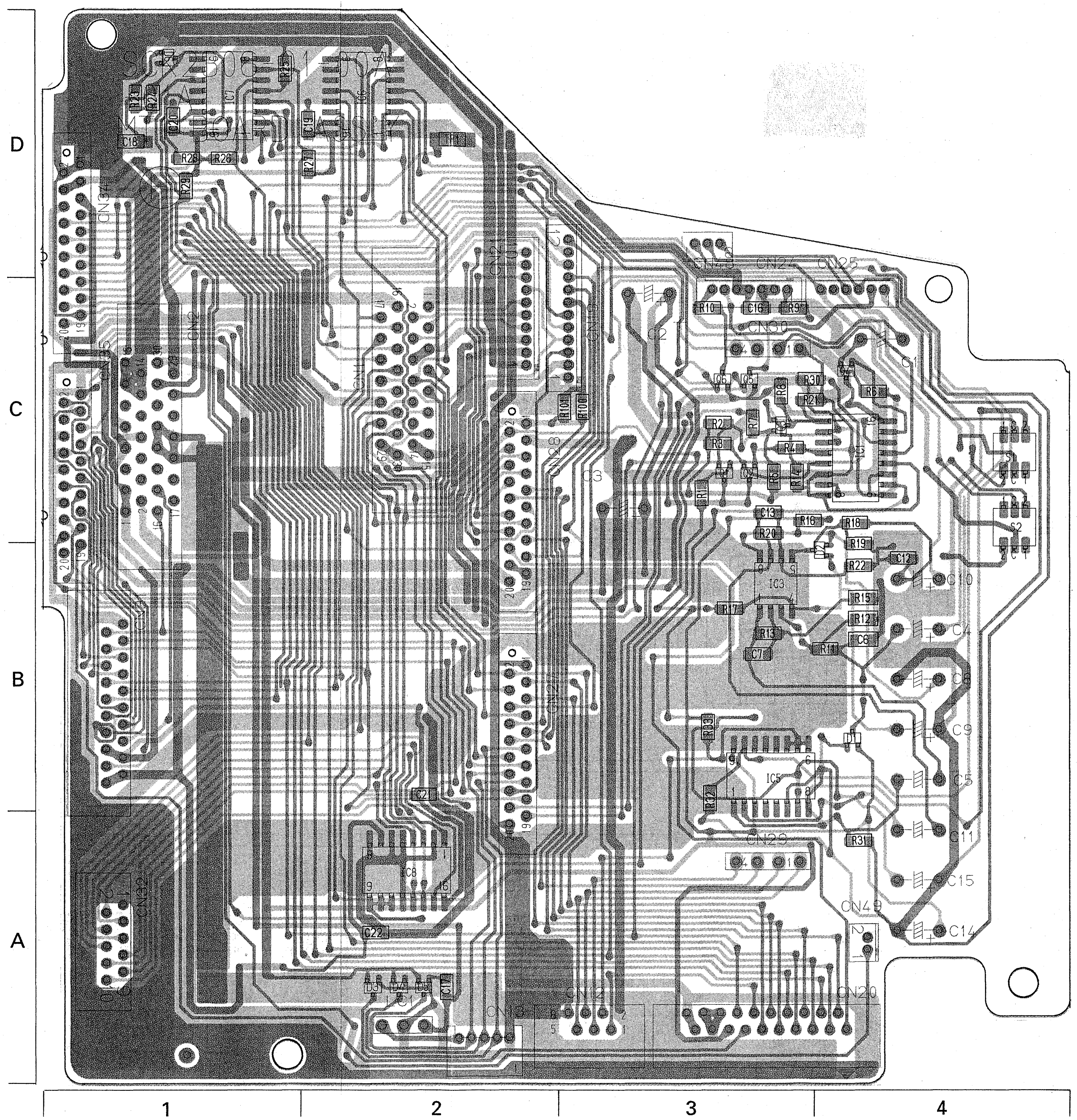
4.21 MT1 CIRCUIT BOARD

●ADDRESS TABLE OF BOARD PARTS

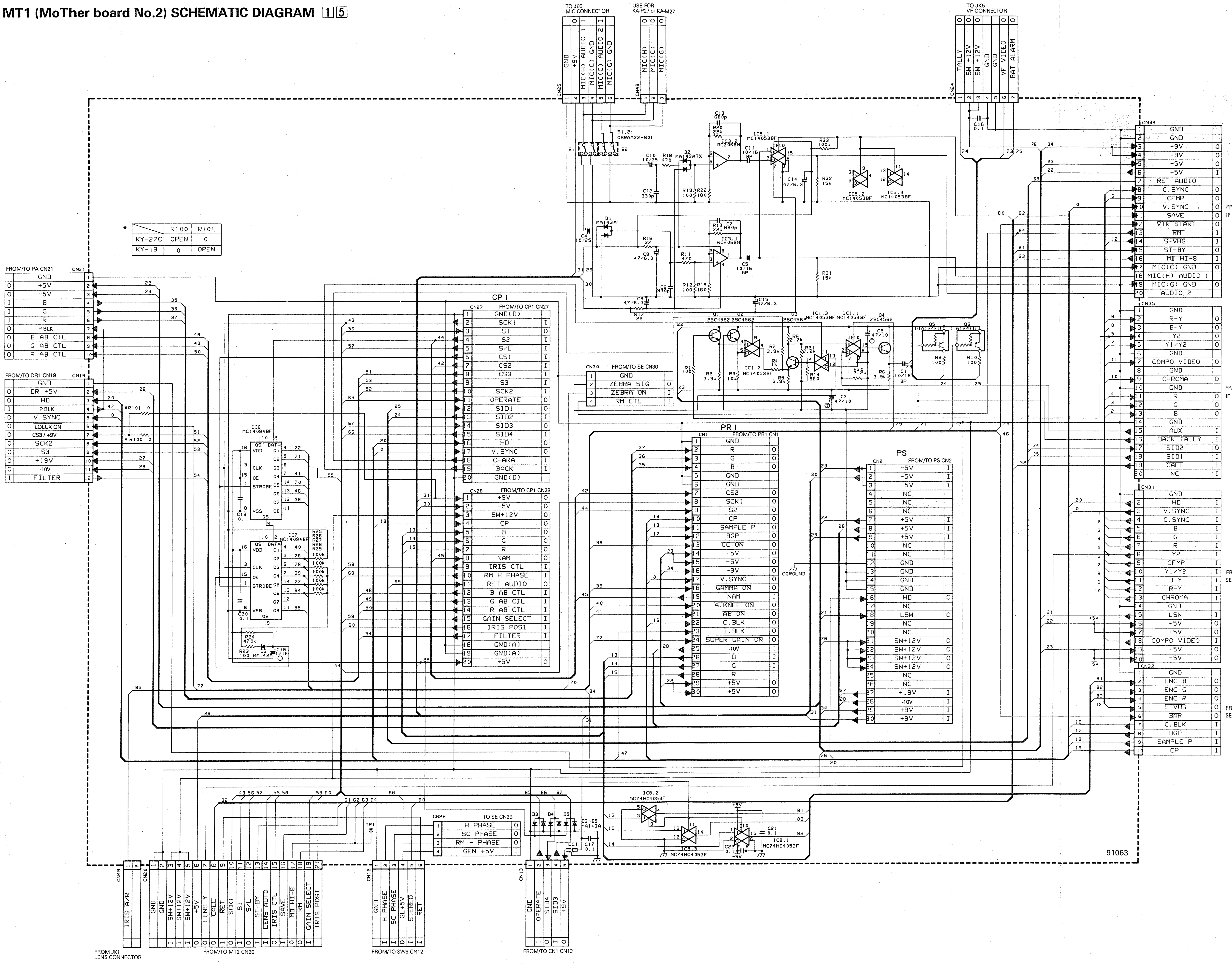
Each address may have an address error by one interval.

A-1C
Side
Y axis
X axis

IC1	4C
IC3	3B
IC5	3B
IC6	2D
IC7	1D
IC8	2A
Q1	3C
Q2	3C
Q3	3C
Q4	4C
Q5	3C
Q6	3C
D1	4B
D2	4B
D3	2A
D4	2A
D5	2A
D6	1D
R1	3C
R2	3C
R3	3C
R4	3C
R5	3C
R6	4C
R7	3C
R8	3C
R9	3C
R10	3C
R11	4B
R12	4B
R13	3B
R14	3C
R15	4B
R16	3C
R17	3B
R18	4C
R19	4B
R20	3C
R21	4C
R22	4B
R23	1D
R24	1D
R25	1D
R26	1D
R27	2D
R28	1D
R29	1D
R30	4C
R31	4A
R32	3B
R33	3B
R100	3C
R101	3C
C1	4C
C2	3C
C3	3C
C4	4B
C5	4B
C6	4B
C7	3B
C8	4B
C9	4B
C10	4B
C11	4A
C12	4B
C13	3C
C14	4A
C15	4A
C16	3C
C17	2A
C18	1D
C19	2D
C20	1D
C21	2B
C22	2A
TP1	2D
S1	4C
S2	4C
CN1	2C
CN2	1C
CN12	3A
CN13	2A
CN19	3C
CN20	4A
CN21	2C
CN24	3C
CN25	4C
CN27	2B
CN28	2C
CN29	3A
CN30	3C
CN31	1B
CN32	1A
CN34	1D
CN35	1C
CN48	3D
CN49	4A
LC1	2A

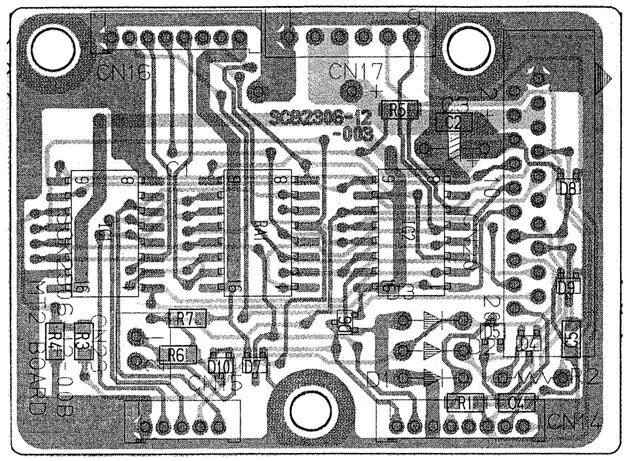

D
C
B
A
1
2
3
4
IC1
IC3
IC5
IC6
IC7
C1
C4
C5
C6
C7
C8
C9
C10
C11
C12
C13
C14
C15
C16
C18
C19
C21
C22
R9
R10
R11
R12
R13
R15
R16
R17
R18
R19
R20
R22
R30
R31
R32
R33
TP1
S2
CN2
CN20
CN25
CN29
CN30
CN48
CN49

4.22 MT1 (MoTher board No.2) SCHEMATIC DIAGRAM 1 5

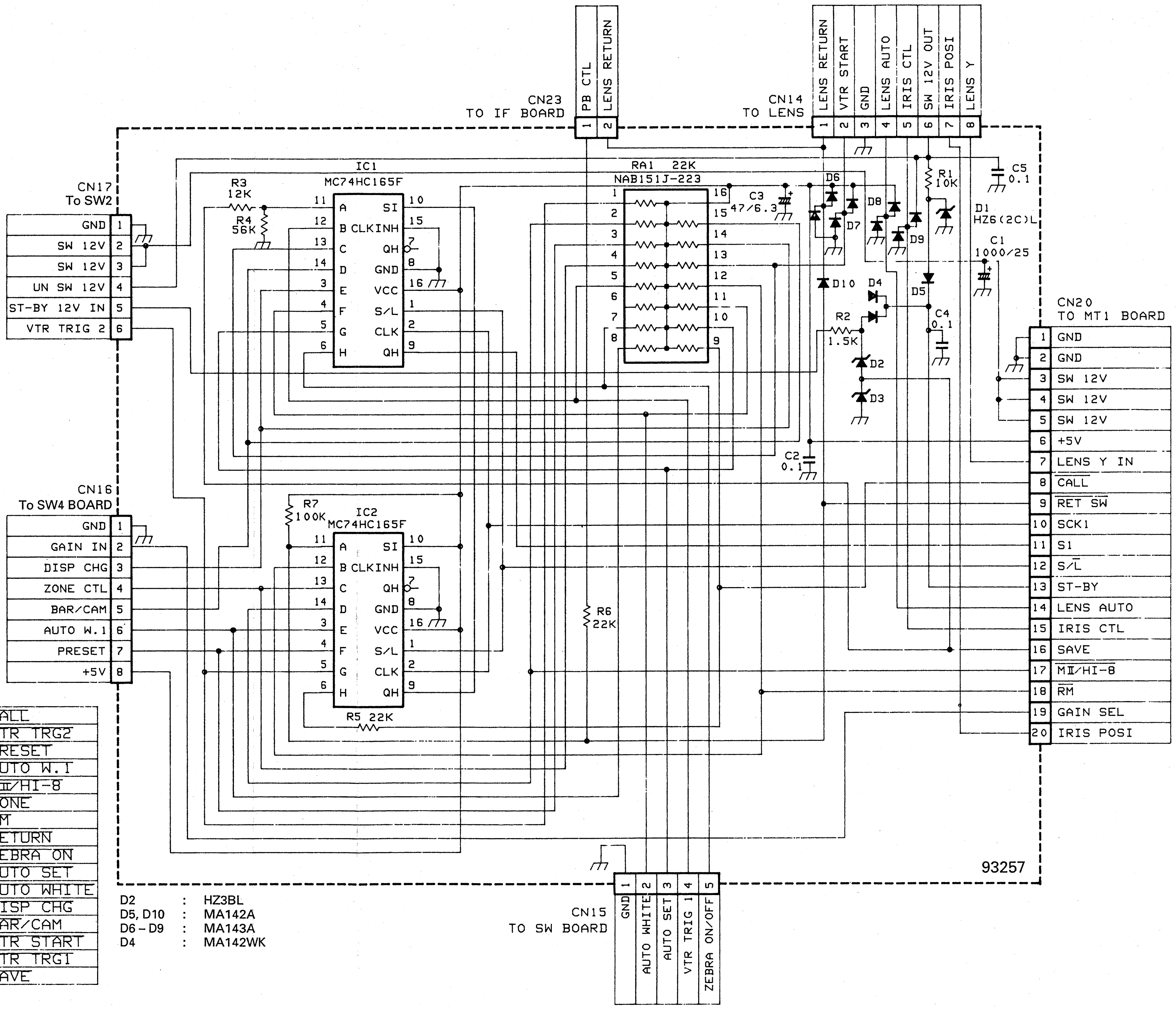

TO JK6 MIC CONNECTOR
CN25
GND
+9V
MIC(H) AUDIO 1
MIC(C) GND
MIC(C) AUDIO 2
MIC(G) GND
USE FOR KA-P27 or KA-M27
CN48
MIC(H)
MIC(C)
MIC(G)
TO JK5 VF CONNECTOR
CN24
TALLY
SW +12V
SW +12V
GND
GND
VF VIDEO
BAT ALARM
S1,2: QSRAA22-S01
S1
S2
C13 680p
R20 22k
IC3.2 RC2068M
IC5.1 MC14053BF
R33 100k
C11 10/16 BP
C10 10/25
R18 470
D2 MA143ATX
C14 47/6.3
R32 15k
IC5.2 MC14053BF
IC5.3 MC14053BF
C12 330p
R19 100
R22 180
C16 0.1
D1 MA143A
C4 10/25
R16 22
C8 47/6.3
R13 22k
C7 680p
IC3.1 RC2068M
R11 470
C5 10/16 BP
R31 15k
C9 47/6.3
C6 330p
R12 100
R15 180
R17 22
C15 47/6.3
Q1 2SC4562
Q2 2SC4562
Q3 2SC4562
IC1.3 MC14053BF
IC1.1 MC14053BF
Q4 2SC4562
Q5 DTA124EU
Q6 DTA124EU
R7 3.9k
R8 2.7k
R21 8.2k
C2 47/10
R9 100
R10 100
R1 100
R2 3.3k
R3 10k
R4 1k
IC1.2 MC14053BF
R5 3.9k
R14 560
R30 2.2k
R6 3.9k
C1 10/16 BP
C3 47/10
* R100 R101
KY-27C OPEN 0
KY-19 0 OPEN
FROM/TO PA CN21
CN21
GND
+5V
-5V
B
G
R
P BLK
B AB CTL
G AB CTL
R AB CTL
FROM/TO DR1 CN19
CN19
GND
DR +5V
HD
P BLK
V.SYNC
LOLUX ON
CS3/+9V
SCK2
S3
+19V
-10V
FILTER
*R101 0
*R100 0
IC6 MC14094BF
QS' DATA
VDD
CLK
OE
STROBE
VSS
QS
C19 0.1
IC7 MC14094BF
C20 0.1
R25 R26 R27 R28 R29 100k
R24 470k
R23 100
D6 MA142A
C18 1/16
CP1
CN27 FROM/TO CP1 CN27
GND(D)
SCK1
S1
S2
S/L
CS1
CS2
CS3
S3
SCK2
OPERATE
SID1
SID2
SID3
SID4
HD
V.SYNC
CHARA
BACK
GND(D)
CN28 FROM/TO CP1 CN28
+9V
-5V
SW+12V
CP
B
G
R
NAM
IRIS CTL
RM H PHASE
RET AUDIO
B AB CTL
G AB CTL
R AB CTL
GAIN SELECT
IRIS POSI
FILTER
GND(A)
GND(A)
+5V
CN30 FROM/TO SE CN30
GND
ZEBRA SIG
ZEBRA ON
RM CTL
PR1
CN1 FROM/TO PR1 CN1
GND
R
G
B
GND
GND
CS2
SCK1
S2
CP
SAMPLE P
BGP
CC ON
-5V
-5V
+9V
V.SYNC
GAMMA ON
NAM
A.KNEE ON
AB ON
C.BLK
I.BLK
SUPER GAIN ON
-10V
B
G
R
+5V
+5V
CGROUND
PS
CN2 FROM/TO PS CN2
-5V
-5V
-5V
NC
NC
NC
+5V
+5V
+5V
NC
NC
GND
GND
GND
GND
HD
NC
LSW
NC
NC
SW+12V
SW+12V
SW+12V
SW+12V
NC
NC
+19V
-10V
+9V
+9V
CN34
GND
GND
+9V
+9V
-5V
+5V
RET AUDIO
C.SYNC
CFMP
V.SYNC
SAVE
VTR START
RM
S-VHS
ST-BY
MD HI-8
MIC(C) GND
MIC(H) AUDIO 1
MIC(G) GND
AUDIO 2
FROM/TO IF CN34
CN35
GND
R-Y
B-Y
Y2
Y1/Y2
GND
COMPO VIDEO
GND
CHROMA
GND
R
G
B
GND
AUX
BACK TALLY
SID2
SID1
CALL
NC
FROM/TO IF CN35
CN31
GND
HD
V.SYNC
C.SYNC
B
G
R
Y2
CFMP
Y1/Y2
B-Y
R-Y
CHROMA
GND
LSW
+5V
+5V
COMPO VIDEO
-5V
-5V
FROM/TO SE CN31
CN32
GND
ENC B
ENC G
ENC R
S-VHS
BAR
C.BLK
BGP
SAMPLE P
CP
FROM/TO SE CN32
IC8.2 MC74HC4053F
IC8.3 MC74HC4053F
IC8.1 MC74HC4053F
C21 0.1
C22 0.1
+5V
-5V
D3 D4 D5
D3-D5 MA143A
C17 0.1
TP1
CN29 TO SE CN29
H PHASE
SC PHASE
RM H PHASE
GEN +5V
91063
CN49
IRIS A/R
FROM JK1 LENS CONNECTOR
CN20
GND
GND
SW+12V
SW+12V
SW+12V
LENS Y
CALL
RET
SCK1
S1
S/L
ST-BY
LENS AUTO
IRIS CTL
SAVE
MD HI-8
RM
GAIN SELECT
IRIS POSI
FROM/TO MT2 CN20
CN12
GND
H PHASE
SC PHASE
GL+5V
STEREO
RET
FROM/TO SW6 CN12
CN13
GND
OPERATE
SID4
SID3
+9V
FROM/TO CN1 CN13

	BAS NUMBER
0	V.SYNC
1	C.SYNC
2	B(PA)
3	G(PA)
4	R(PA)
5	Y2
6	CFMP
7	Y1/Y2
8	B-Y
9	R-Y
10	CHROMA
11	COMPOSITE
12	S-VHS CTL
13	B
14	G
15	R
16	C.BLK
17	BGP
18	SAMPLE P
19	CP
20	HD
21	LSW
22	SE+5V
23	SE-5V
24	SID2
25	SID1
26	DR+5V
27	DR+19V
28	DR-9V
29	CP+5V
30	CP-5V
31	CP+9V
32	CALL
33	
34	PR+9V
35	PRB
36	PRG
37	PRR
38	CC ON
39	GAMMA ON
40	AUTO KNEE ON
41	AB CTL
42	CS2
43	SCK1
44	S2
45	NAM
46	BAR CTL
47	I.BLK
48	B AB CTL
49	G AB CTL
50	R AB CTL
51	CS3
52	SCK2
53	S3
54	FILTER
55	LENS AUTO
56	S1
57	CS
58	IRIS CTL
59	GAIN CTL
60	IRIS POSI
61	ST-BY CTL
62	SAVE CTL
63	HI-8
64	RM CTL
65	OPERATE
66	SID4
67	SID3
68	RM H FHASE
69	RET AUDIO
70	ZEBRA CTL
71	TALLY(CP)
72	BATT IND(CP)
73	VF VIDEO
74	TALLY
75	BATT IND
76	SW+12V
77	SUPER GAIN
78	VTR START
79	AUX
80	STEREO
81	ENC B
82	ENC G
83	ENC R
84	ENC OFF
85	IRIS A/R

4.23 MT2 CIRCUIT BOARD


CN16
CN17
SCB2306-12
-003
R6
C2
R7
R6
D10
D7
R1
C4
CN14
CN15
MT2 BOARD

4.24 MT2 (MoTher board No.2) SCHEMATIC DIAGRAM 1 6

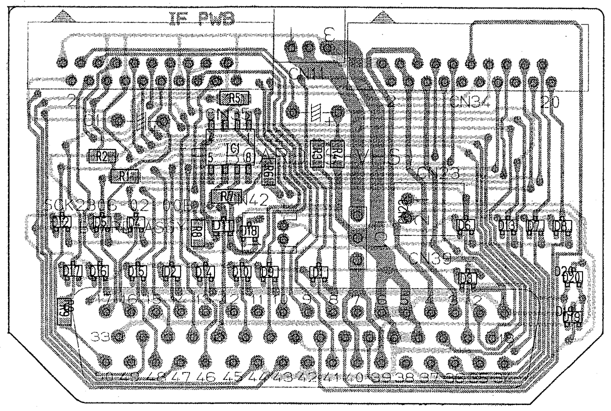

CN23
TO IF BOARD
1 PB CTL
2 LENS RETURN
CN14
TO LENS
1 LENS RETURN
2 VTR START
3 GND
4 LENS AUTO
5 IRIS CTL
6 SW 12V OUT
7 IRIS POSI
8 LENS Y
CN17
To SW2
1 GND
2 SW 12V
3 SW 12V
4 UN SW 12V
5 ST-BY 12V IN
6 VTR TRIG 2
CN16
To SW4 BOARD
1 GND
2 GAIN IN
3 DISP CHG
4 ZONE CTL
5 BAR/CAM
6 AUTO W.1
7 PRESET
8 +5V
IC1
MC74HC165F
IC2
MC74HC165F
A SI CLKINH QH GND VCC S/L CLK
R3 12K
R4 56K
R7 100K
R5 22K
R6 22K
RA1 22K
NAB151J-223
C3 47/6.3
R1 10K
C5 0.1
D1 HZ6(2C)L
C1 1000/25
D6 D7 D8 D9
D10 D4 D5
R2 1.5K
C4 0.1
D2 D3
C2 0.1
CN20
TO MT1 BOARD
1 GND
2 GND
3 SW 12V
4 SW 12V
5 SW 12V
6 +5V
7 LENS Y IN
8 CALL
9 RET SW
10 SCK1
11 S1
12 S/L
13 ST-BY
14 LENS AUTO
15 IRIS CTL
16 SAVE
17 MII/HI-8
18 RM
19 GAIN SEL
20 IRIS POSI
CN15
TO SW BOARD
1 GND
2 AUTO WHITE
3 AUTO SET
4 VTR TRIG 1
5 ZEBRA ON/OFF
93257

IC2	1	H	$\overline{\text{CALL}}$
	2	G	$\overline{\text{VTR TRG2}}$
	3	F	$\overline{\text{PRESET}}$
	4	E	$\overline{\text{AUTO W.1}}$
	5	D	$\overline{\text{MII/HI-8}}$
	6	C	$\overline{\text{ZONE}}$
	7	B	$\overline{\text{RM}}$
	8	A	$\overline{\text{RETURN}}$
IC1	9	H	$\overline{\text{ZEBRA ON}}$
	10	G	$\overline{\text{AUTO SET}}$
	11	F	$\overline{\text{AUTO WHITE}}$
	12	E	$\overline{\text{DISP CHG}}$
	13	D	$\overline{\text{BAR/CAM}}$
	14	C	$\overline{\text{VTR START}}$
	15	B	$\overline{\text{VTR TRG1}}$
	16	A	$\overline{\text{SAVE}}$

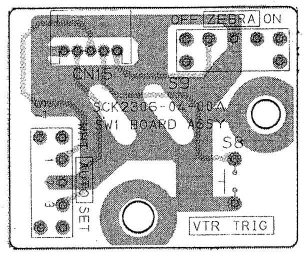
D2 : HZ3BL
D5, D10 : MA142A
D6 – D9 : MA143A
D4 : MA142WK

4.25 IF/SW CIRCUIT BOARDS

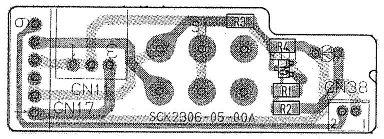
- **IF**


IF PWB
CN34
20
SCK2306-02-00B

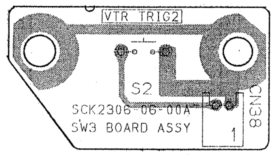
- **SW1**


OFF ZEBRA ON
S9
CN15
SCK2306-04-00A
SW1 BOARD ASSY
S8
S7
AUTO SET
VTR TRIG

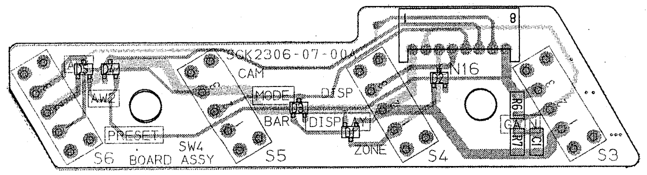
- **SW2**


CN11
CN17
CN38
SCK2306-05-00A

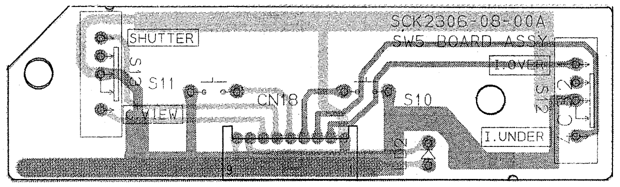
- **SW3**


VTR TRIG2
S2
SCK2306-06-00A
SW3 BOARD ASSY
CN38

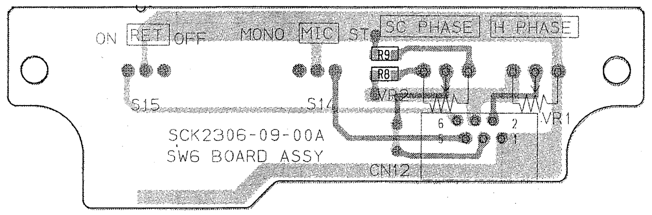
- **SW4**


SCK2306-07-00A
CAM
MODE
DISP
BAR
DISPLAY
ZONE
CN16
PRESET
S6 BOARD ASSY
SW4
S5
S4
S3

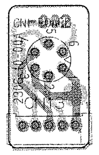
- **SW5**


SCK2306-08-00A
SW5 BOARD ASSY
SHUTTER
S11
C.VIEW
CN18
S10
I.OVER
I.UNDER
S12
S13

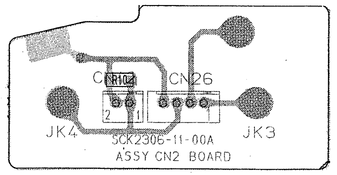
- **SW6**


ON RET OFF
MONO MIC ST
SC PHASE
H PHASE
R9
R8
S15
S14
VR2
VR1
SCK2306-09-00A
SW6 BOARD ASSY
CN12

- **CN1**

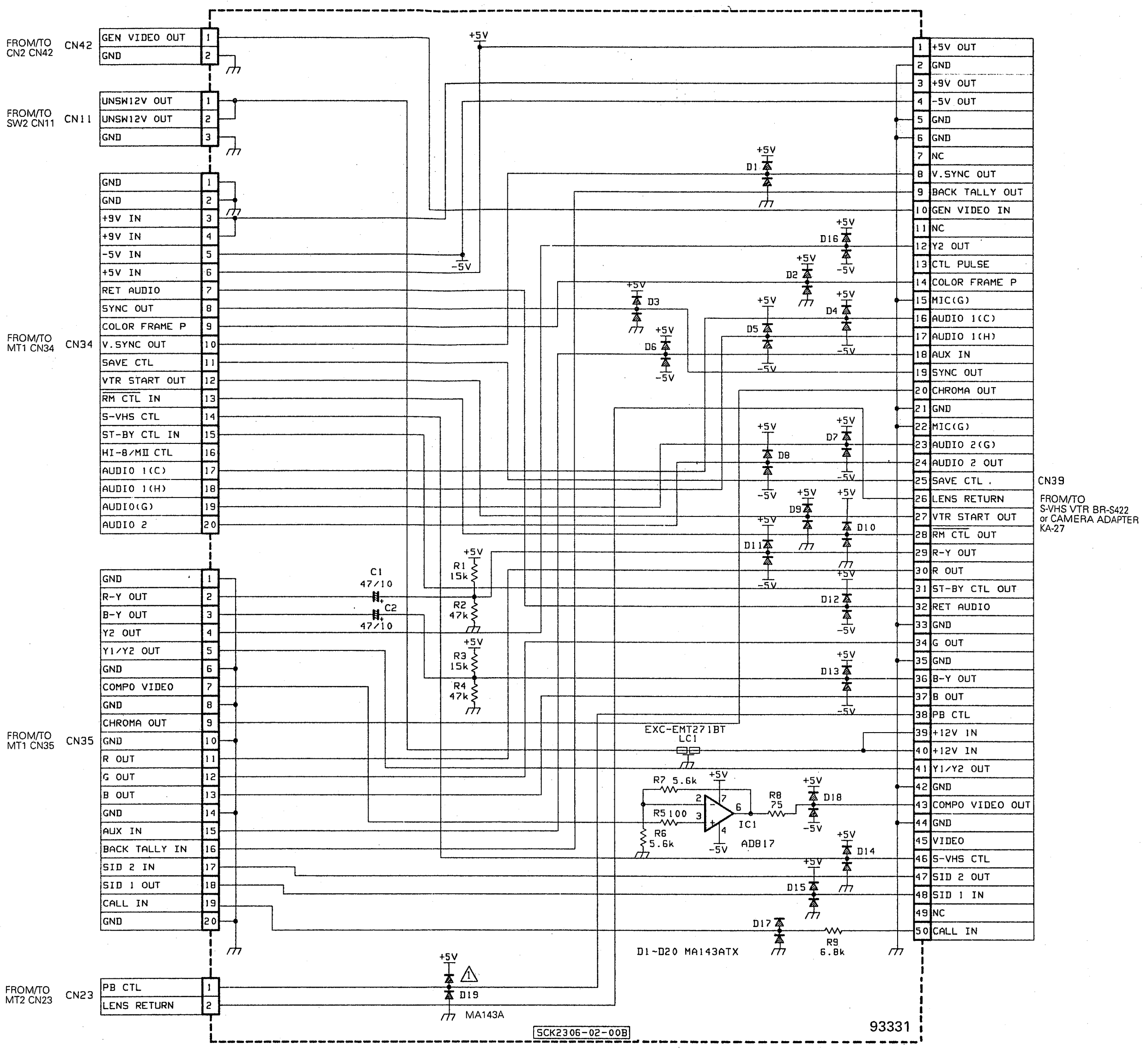


- **CN2**

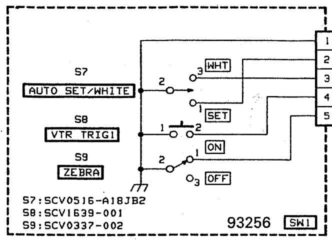

R10
CN26
CN42
JK4
JK3
SCK2306-11-00A
ASSY CN2 BOARD

4.26 IF 14 /SW1-6 19 - 20 /CN1-2 17 - 18 /FP (InterFace/SWitch1-6/CoNector1-2/ Filter Plate boards) SCHEMATIC DIAGRAMS

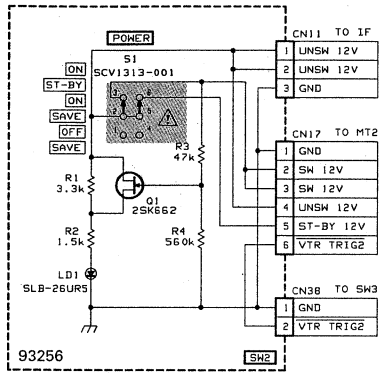
- **IF**


FROM/TO CN2 CN42
CN42
GEN VIDEO OUT
GND
FROM/TO SW2 CN11
CN11
UNSW12V OUT
UNSW12V OUT
GND
FROM/TO MT1 CN34
CN34
+9V IN
-5V IN
+5V IN
RET AUDIO
SYNC OUT
COLOR FRAME P
V.SYNC OUT
SAVE CTL
VTR START OUT
RM CTL IN
S-VHS CTL
ST-BY CTL IN
HI-8/MB CTL
AUDIO 1(C)
AUDIO 1(H)
AUDIO(G)
AUDIO 2
FROM/TO MT1 CN35
CN35
R-Y OUT
B-Y OUT
Y2 OUT
Y1/Y2 OUT
COMPO VIDEO
CHROMA OUT
R OUT
G OUT
B OUT
AUX IN
BACK TALLY IN
SID 2 IN
SID 1 OUT
CALL IN
FROM/TO MT2 CN23
CN23
PB CTL
LENS RETURN
CN39
FROM/TO S-VHS VTR BR-S422 or CAMERA ADAPTER KA-27
+5V OUT
+9V OUT
-5V OUT
NC
V.SYNC OUT
BACK TALLY OUT
GEN VIDEO IN
Y2 OUT
CTL PULSE
COLOR FRAME P
MIC(G)
AUDIO 1(C)
AUDIO 1(H)
AUX IN
SYNC OUT
CHROMA OUT
MIC(G)
AUDIO 2(G)
AUDIO 2 OUT
SAVE CTL
LENS RETURN
VTR START OUT
RM CTL OUT
R-Y OUT
R OUT
ST-BY CTL OUT
RET AUDIO
G OUT
B-Y OUT
B OUT
PB CTL
+12V IN
Y1/Y2 OUT
COMPO VIDEO OUT
VIDEO
S-VHS CTL
SID 2 OUT
SID 1 IN
CALL IN
C1 47/10
C2 47/10
R1 15k
R2 47k
R3 15k
R4 47k
EXC-EMT271BT
LC1
R7 5.6k
R5 100
R6 5.6k
R8 75
IC1 AD817
R9 6.8k
D1-D20 MA143ATX
D19 MA143A
SCK2306-02-00B
93331

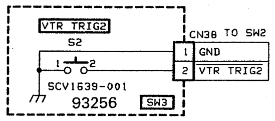
- **SW1**


CN15 TO MT2
GND
AUTO SET
AUTO WHITE
VTR TRIG1
ZEBRA
S7
AUTO SET/WHITE
WHT
S8
VTR TRIG1
SET
S9
ZEBRA
ON
OFF
S7:SCV0516-A18JB2
S8:SCV1639-001
S9:SCV0337-002
93256
SW1

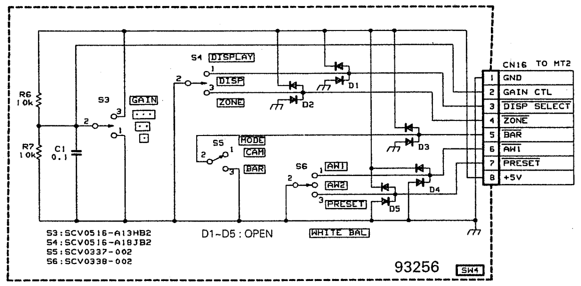
- **SW2**


POWER
S1
SCV1313-001
ON
ST-BY
ON
SAVE
OFF
SAVE
CN11 TO IF
UNSW 12V
UNSW 12V
GND
CN17 TO MT2
GND
SW 12V
SW 12V
UNSW 12V
ST-BY 12V
VTR TRIG2
R3 47k
R1 3.3k
Q1 2SK662
R2 1.5k
R4 560k
LD1 SLB-26URS
CN38 TO SW3
GND
VTR TRIG2
93256
SW2

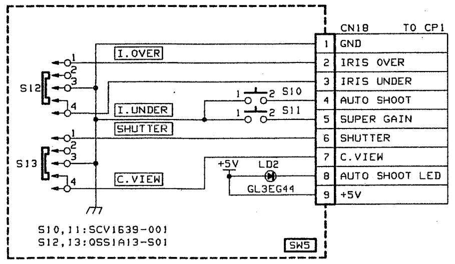
- **SW3**


VTR TRIG2
S2
SCV1639-001
CN38 TO SW2
GND
VTR TRIG2
93256
SW3

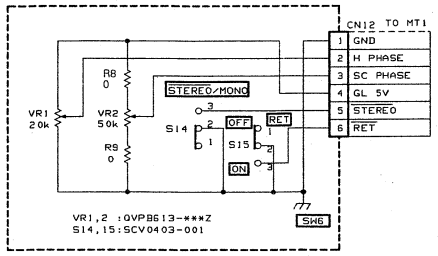
- **SW4**


S4 DISPLAY
DISP
ZONE
S3 GAIN
S5 MODE CAM BAR
S6 AWB AWB PRESET
R6 10k
R7 10k
C1 0.1
CN16 TO MT2
GND
GAIN CTL
DISP SELECT
ZONE
BAR
AWB
PRESET
+5V
S3:SCV0516-A13HB2
S4:SCV0516-A18JB2
S5:SCV0337-002
S6:SCV0338-002
D1-D5: OPEN
WHITE BAL
93256
SW4

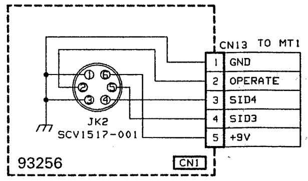
- **SW5**


I.OVER
S12
I.UNDER
SHUTTER
S13
C.VIEW
S10
S11
+5V LD2 GL3EG44
CN18 TO CP1
GND
IRIS OVER
IRIS UNDER
AUTO SHOOT
SUPER GAIN
SHUTTER
C.VIEW
AUTO SHOOT LED
+5V
S10,11:SCV1639-001
S12,13:QSS1A13-S01
SW5

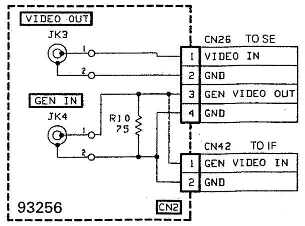
- **SW6**


R8 0
VR1 20k
VR2 50k
R9 0
STEREO/MONO
S14
OFF
RET
S15
ON
CN12 TO MT1
GND
H PHASE
SC PHASE
GL 5V
STEREO
RET
VR1,2 :QVP8613-***Z
S14,15:SCV0403-001
SW6

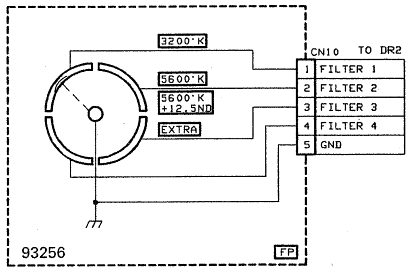
- **CN1**


JK2
SCV1517-001
CN13 TO MT1
GND
OPERATE
SID4
SID3
+9V
93256
CN1

- **CN2**


VIDEO OUT
JK3
GEN IN
JK4
R10 75
CN26 TO SE
VIDEO IN
GND
GEN VIDEO OUT
GND
CN42 TO IF
GEN VIDEO IN
GND
93256
CN2

- **FP**


3200°K
5600°K
5600°K +12.5ND
EXTRA
CN10 TO DR2
FILTER 1
FILTER 2
FILTER 3
FILTER 4
GND
93256
FP

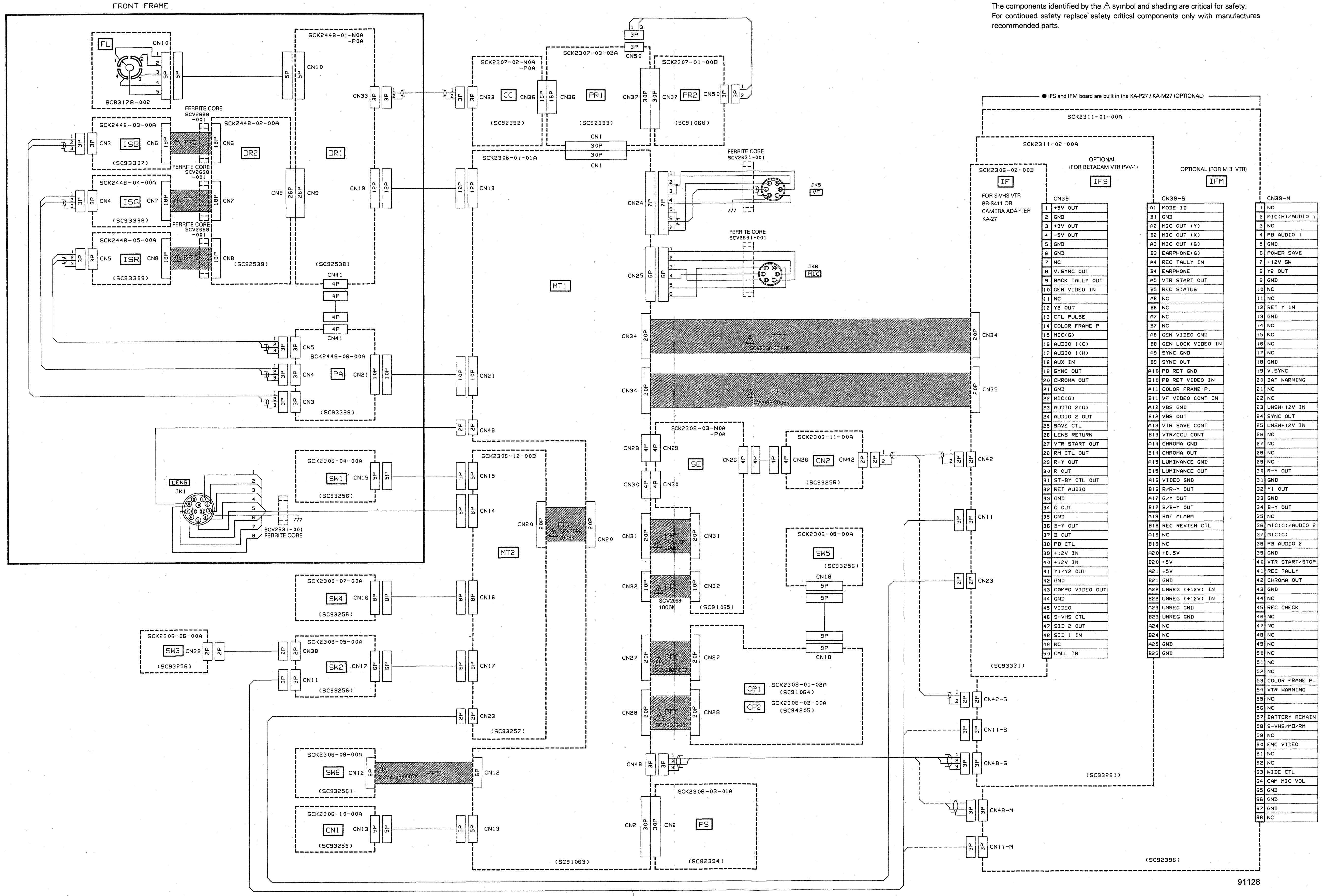
- **SAFETY PRECAUTION**

The components identified by the ⚠ symbol and shading are critical for safety.
For continued safety replace safety critical components only with manufactures recommended parts.

4.27 OVERALL WIRINGDIAGRAM

- **SAFETY PRECAUTION**

  The components identified by the ⚠ symbol and shading are critical for safety.
  For continued safety replace safety critical components only with manufactures recommended parts.



FRONT FRAME
FL
CN10
SC83178-002
SCK2448-01-N0A -P0A
DR1
CN33
CN19
CN9
SCK2448-02-00A
DR2
SCK2448-03-00A
ISB
CN3
CN6
(SC93397)
SCK2448-04-00A
ISG
CN4
CN7
(SC93398)
SCK2448-05-00A
ISR
CN5
CN8
(SC93399)
(SC92539)
(SC92538)
FERRITE CORE SCV2698 -001
FFC
CN41
SCK2448-06-00A
PA
CN21
(SC93328)
LENS
JK1
SCV2631-001 FERRITE CORE
SCK2306-04-00A
SW1
CN15
(SC93256)
SCK2306-07-00A
SW4
CN16
SCK2306-06-00A
SW3
CN38
SCK2306-05-00A
SW2
CN17
CN11
SCK2306-09-00A
SW6
CN12
SCV2098-0607K
SCK2306-10-00A
CN1
CN13
SCK2307-02-N0A -P0A
CC
CN36
(SC92392)
SCK2307-03-02A
PR1
CN37
(SC92393)
CN50
SCK2307-01-00B
PR2
(SC91066)
SCK2306-01-01A
MT1
CN24
CN25
CN34
CN35
CN49
CN14
CN20
CN23
CN48
CN2
SCK2306-12-00B
MT2
SCV2098-2005K
(SC93257)
(SC91063)
FERRITE CORE SCV2631-001
JK5
VF
JK6
MIC
SCV2098-2011K
SCV2098-2006K
SCK2308-03-N0A -P0A
SE
CN29
CN30
CN31
CN32
CN26
CN27
CN28
SCV2098-2006K
SCV2098-1006K
SCV2098-002
(SC91065)
SCK2306-11-00A
CN2
CN42
(SC93256)
SCK2306-08-00A
SW5
CN18
9P
CP1
SCK2308-01-02A (SC91064)
CP2
SCK2308-02-00A (SC94205)
SCK2306-03-01A
PS
(SC92394)
CN42-S
CN11-S
CN48-S
CN48-M
CN11-M
(SC93261)
(SC92396)
(SC93331)
● IFS and IFM board are built in the KA-P27 / KA-M27 (OPTIONAL)
SCK2311-01-00A
SCK2311-02-00A
SCK2306-02-00B
IF
FOR S-VHS VTR BR-S411 OR CAMERA ADAPTER KA-27
OPTIONAL (FOR BETACAM VTR PVV-1)
IFS
OPTIONAL (FOR M II VTR)
IFM

CN39

1	+5V OUT
2	GND
3	+9V OUT
4	-5V OUT
5	GND
6	GND
7	NC
8	V.SYNC OUT
9	BACK TALLY OUT
10	GEN VIDEO IN
11	NC
12	Y2 OUT
13	CTL PULSE
14	COLOR FRAME P
15	MIC(G)
16	AUDIO 1(C)
17	AUDIO 1(H)
18	AUX IN
19	SYNC OUT
20	CHROMA OUT
21	GND
22	MIC(G)
23	AUDIO 2(G)
24	AUDIO 2 OUT
25	SAVE CTL
26	LENS RETURN
27	VTR START OUT
28	$\overline{\text{RM CTL}}$ OUT
29	R-Y OUT
30	R OUT
31	ST-BY CTL OUT
32	RET AUDIO
33	GND
34	G OUT
35	GND
36	B-Y OUT
37	B OUT
38	PB CTL
39	+12V IN
40	+12V IN
41	Y1/Y2 OUT
42	GND
43	COMPO VIDEO OUT
44	GND
45	VIDEO
46	S-VHS CTL
47	SID 2 OUT
48	SID 1 IN
49	NC
50	CALL IN

CN39-S

A1	MODE ID
B1	GND
A2	MIC OUT (Y)
B2	MIC OUT (X)
A3	MIC OUT (G)
B3	EARPHONE(G)
A4	REC TALLY IN
B4	EARPHONE
A5	VTR START OUT
B5	REC STATUS
A6	NC
B6	NC
A7	NC
B7	NC
A8	GEN VIDEO GND
B8	GEN LOCK VIDEO IN
A9	SYNC GND
B9	SYNC OUT
A10	PB RET GND
B10	PB RET VIDEO IN
A11	COLOR FRAME P.
B11	VF VIDEO CONT IN
A12	VBS GND
B12	VBS OUT
A13	VTR SAVE CONT
B13	VTR/CCU CONT
A14	CHROMA GND
B14	CHROMA OUT
A15	LUMINANCE GND
B15	LUMINANCE OUT
A16	VIDEO GND
B16	R/R-Y OUT
A17	G/Y OUT
B17	B/B-Y OUT
A18	BAT ALARM
B18	REC REVIEW CTL
A19	NC
B19	NC
A20	+8.5V
B20	+5V
A21	-5V
B21	GND
A22	UNREG (+12V) IN
B22	UNREG (+12V) IN
A23	UNREG GND
B23	UNREG GND
A24	NC
B24	NC
A25	GND
B25	GND

CN39-M

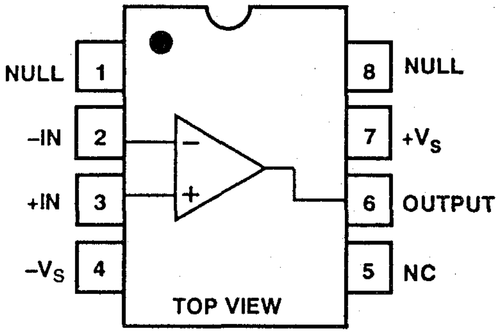
1	NC
2	MIC(H)/AUDIO 1
3	NC
4	PB AUDIO 1
5	GND
6	POWER SAVE
7	+12V SW
8	Y2 OUT
9	GND
10	NC
11	NC
12	RET Y IN
13	GND
14	NC
15	NC
16	NC
17	NC
18	GND
19	V.SYNC
20	BAT WARNING
21	NC
22	NC
23	UNSW+12V IN
24	SYNC OUT
25	UNSW+12V IN
26	NC
27	NC
28	NC
29	NC
30	R-Y OUT
31	GND
32	Y1 OUT
33	GND
34	B-Y OUT
35	NC
36	MIC(C)/AUDIO 2
37	MIC(G)
38	PB AUDIO 2
39	GND
40	VTR START/STOP
41	REC TALLY
42	CHROMA OUT
43	GND
44	NC
45	REC CHECK
46	NC
47	NC
48	NC
49	NC
50	NC
51	NC
52	NC
53	COLOR FRAME P.
54	VTR WARNING
55	NC
56	NC
57	BATTERY REMAIN
58	S-VHS/MII/RM
59	NC
60	ENC VIDEO
61	NC
62	NC
63	WIDE CTL
64	CAM MIC VOL
65	GND
66	GND
67	GND
68	NC

91128

4-26

4.28 SCHEMATIC DIAGRAM of ICs

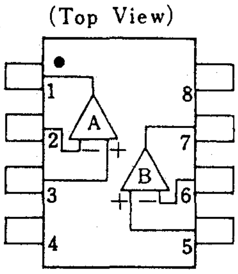
■ AD817AR 【ANALOG DEVICES】
(Hi-Speed Low Power Op.Amp)



NULL 1
–IN 2
+IN 3
–V_S 4
8 NULL
7 +V_S
6 OUTPUT
5 NC
TOP VIEW

NC = NO CONNECT

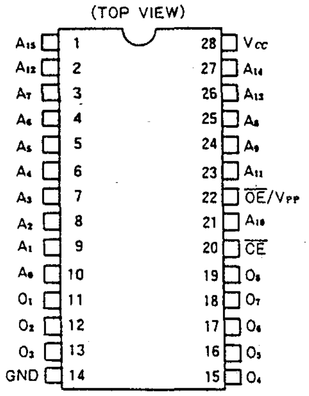
■ LM2904M 【TEXAS】
(Dual Op.Amp)



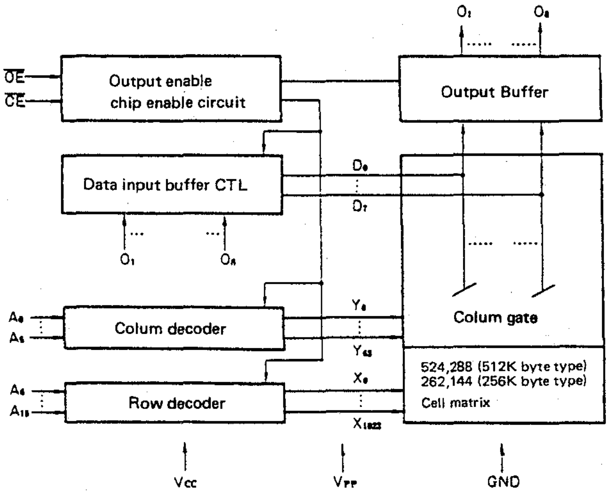
(Top View)
1
2
3
4
8
7
6
5
A
B

Pin
1. A OUTPUT
2. A–INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B–INPUT
7. B OUTPUT
8. V⁺

■ AM27C512-150DC 【AMD】
(512K Byte one time P-ROM)

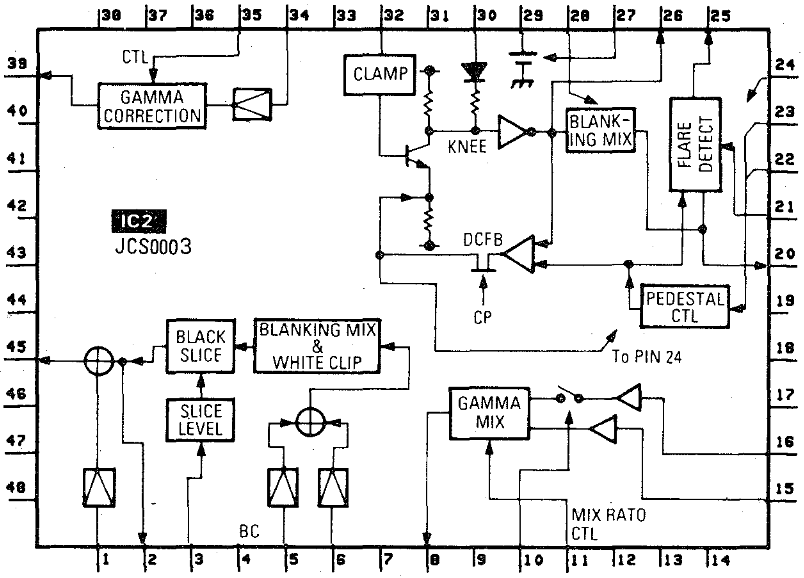


(TOP VIEW)
A15 1
A12 2
A7 3
A6 4
A5 5
A4 6
A3 7
A2 8
A1 9
A0 10
O1 11
O2 12
O3 13
GND 14
28 Vcc
27 A14
26 A13
25 A8
24 A9
23 A11
22 OE/Vpp
21 A10
20 CE
19 O8
18 O7
17 O6
16 O5
15 O4



O1
O8
OE
CE
Output enable chip enable circuit
Output Buffer
Data input buffer CTL
O0
O7
O1
O8
A0
A5
Colum decoder
Y0
Y63
Colum gate
A6
A15
Row decoder
X0
X1023
524,288 (512K byte type)
262,144 (256K byte type)
Cell matrix
Vcc
Vpp
GND

■ JCS0003 【JVC】
(PROCESS)



38
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16
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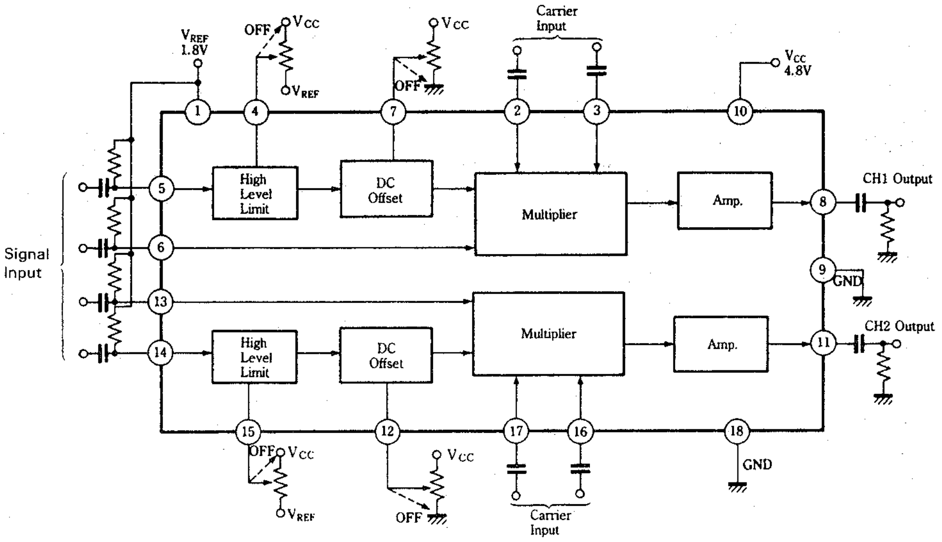
5
6
7
8
9
10
11
12
13
14
CTL
GAMMA CORRECTION
CLAMP
KNEE
BLANKING MIX
FLARE DETECT
IC2
JCS0003
DCFB
CP
PEDESTAL CTL
To PIN 24
BLACK SLICE
BLANKING MIX & WHITE CLIP
SLICE LEVEL
GAMMA MIX
MIX RATO CTL
BC

■ AN2020S 【MATSUSHITA】
(Dual Balanced Modulator)

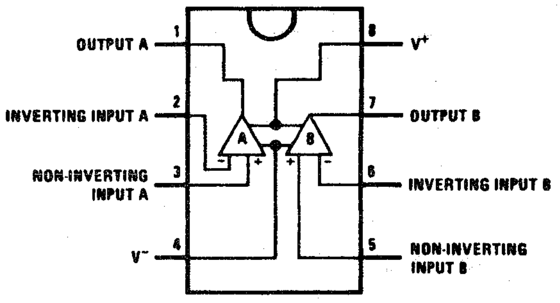


V_{REF} 1.8V
OFF
Vcc
V_{REF}
Vcc
OFF
Carrier Input
V_{CC} 4.8V
1
4
7
2
3
10
5
High Level Limit
DC Offset
Multiplier
Amp.
8
CH1 Output
6
Signal Input
9
GND
13
Multiplier
Amp.
CH2 Output
14
High Level Limit
DC Offset
11
15
12
17
16
18
OFF
Vcc
V_{REF}
Vcc
OFF
Carrier Input
GND

■ Pin function

Pin No.	Pin Name	Pin No.	Pin Name
1	V_{REF} (1.8V)	10	V_{CC} (4.8V)
2	CH1 Carrier Input 1	11	CH2 Output
3	CH1 Carrier Input 2	12	CH2 DC Offset
4	CH1 High Level Limit	13	CH2 Signal Input 2
5	CH1 Signal Input 1	14	CH2 Signal Input 1
6	CH1 Signal Input 2	15	CH2 High Level Limit
7	CH1 DC Offset	16	CH2 Carrier Input 2
8	CH1 Output	17	CH2 Carrier Input 1
9	GND	18	GND

■ LMC6082IM 【National Semiconductor】
(Precision CMOS Dual Op.Amp)

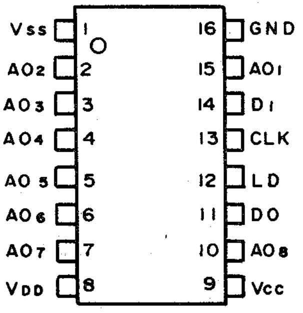


OUTPUT A
1
INVERTING INPUT A
2
NON-INVERTING INPUT A
3
V⁻
4
8
V⁺
7
OUTPUT B
6
INVERTING INPUT B
5
NON-INVERTING INPUT B
A
B

Top View

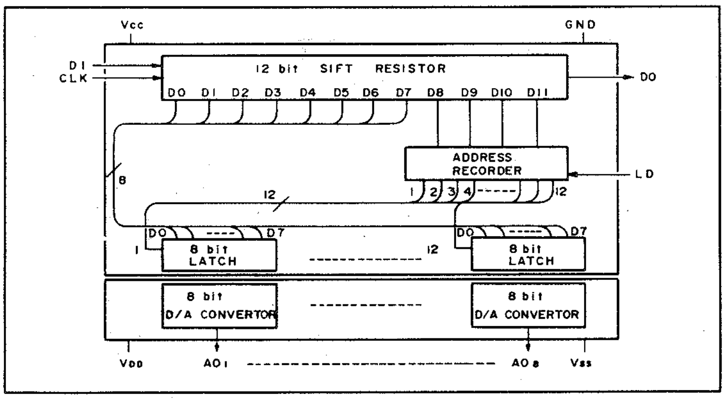
■ MB88342PF 【FUJITSU】
(D/A Converter)

(TOP VIEW)



Vss
1
AO2
2
AO3
3
AO4
4
AO5
5
AO6
6
AO7
7
VDD
8
16
GND
15
AO1
14
DI
13
CLK
12
LD
11
DO
10
AO8
9
Vcc

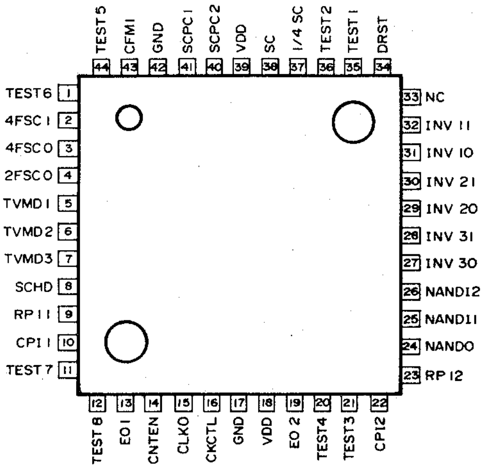
(FPT-16P-M02)

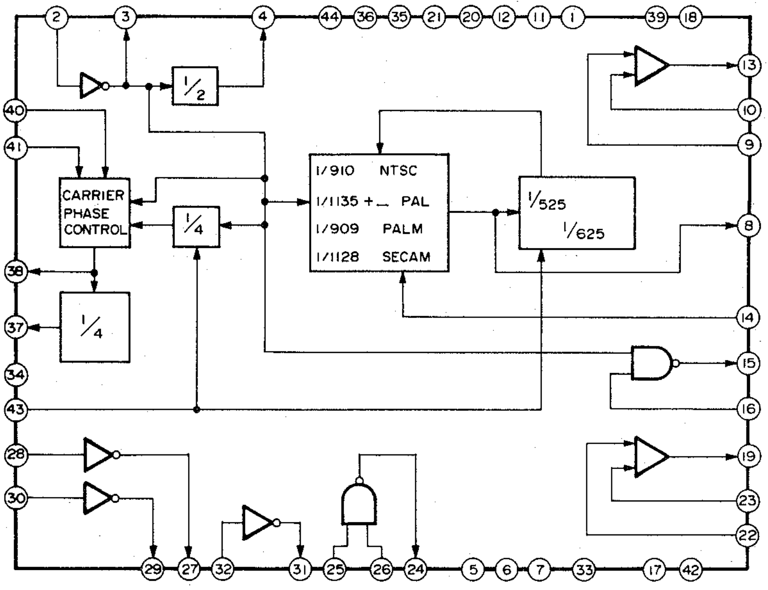


Vcc
GND
DI
CLK
12 bit SIFT RESISTOR
DO D1 D2 D3 D4 D5 D6 D7 D8 D9 D10 D11
DO
ADDRESS RECORDER
LD
8
12
1 2 3 4 12
DO D7
1
8 bit LATCH
12
DO D7
8 bit LATCH
8 bit D/A CONVERTOR
8 bit D/A CONVERTOR
VDD
AO1
AO8
Vss

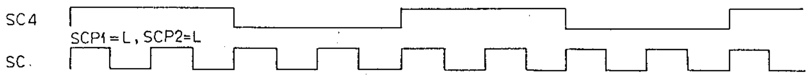
■ JCS0001 【JVC】
(SSG)

(TOP VIEW)

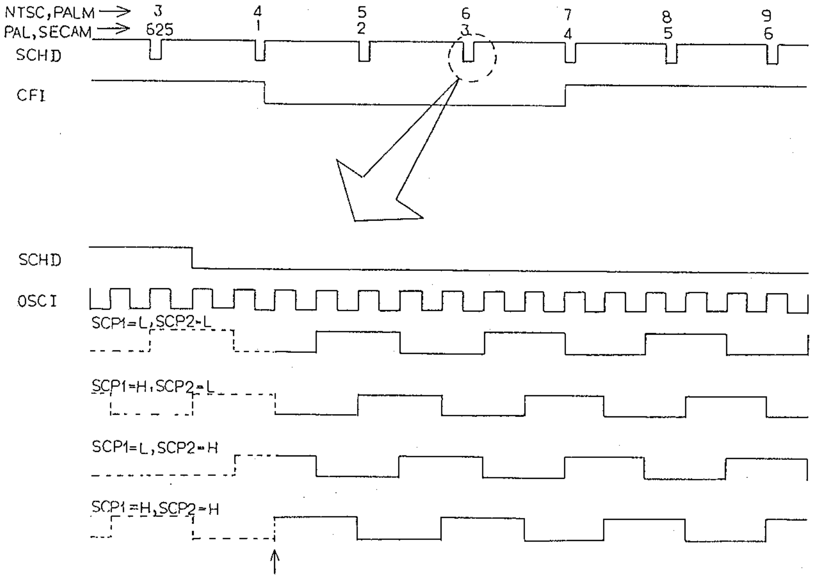

TEST5 44
CFMI 43
GND 42
SCPC1 41
SCPC2 40
VDD 39
SC 38
1/4 SC 37
TEST2 36
TEST1 35
DRST 34
TEST6 1
4FSC I 2
4FSC O 3
2FSC O 4
TVMD1 5
TVMD2 6
TVMD3 7
SCHD 8
RP11 9
CP11 10
TEST7 11
33 NC
32 INV 11
31 INV 10
30 INV 21
29 INV 20
28 INV 31
27 INV 30
26 NAND12
25 NAND11
24 NANDO
23 RP 12
12 TEST8
13 EOI
14 CNTEN
15 CLKO
16 CKCTL
17 GND
18 VDD
19 EO 2
20 TEST4
21 TEST3
22 CP12


CARRIER PHASE CONTROL
1/2
1/4
1/4
1/910 NTSC
1/1135 +— PAL
1/909 PALM
1/1128 SECAM
1/525
1/625

Timming chart of SC4

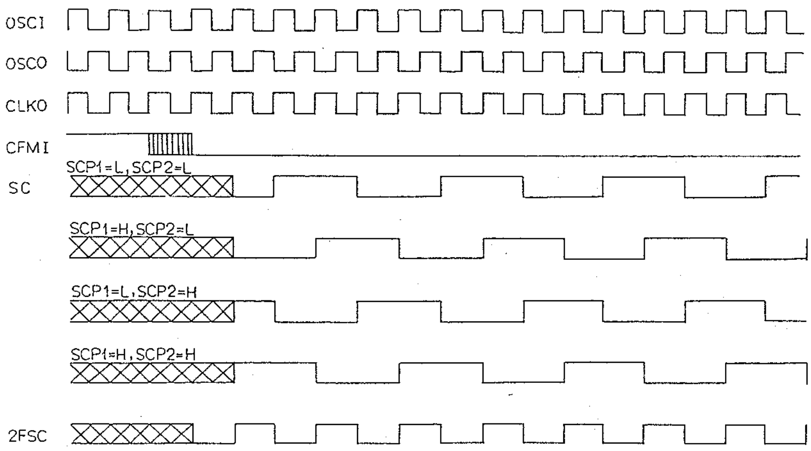

SC4
SCP1=L, SCP2=L
SC

Syncro-reset mode (DRST = H)


NTSC,PALM
PAL,SECAM
SCHD
3 625
4 1
5 2
6 3
7 4
8 5
9 6
CFI
SCHD
OSCI
SCP1=L,SCP2=L
SCP1=H,SCP2=L
SCP1=L,SCP2=H
SCP1=H,SCP2=H

Reset point

Direct-reset mode (DRST = L)

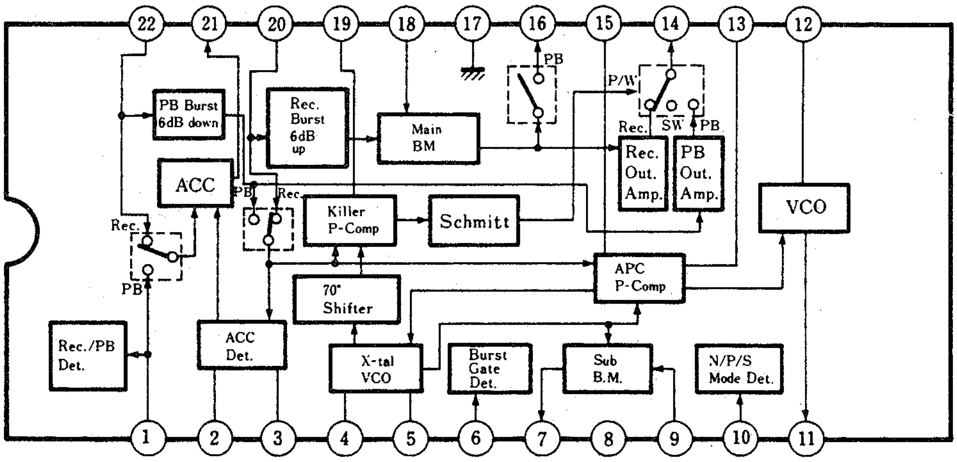

OSCI
OSCO
CLKO
CFMI
SC
SCP1=L, SCP2=L
SCP1=H, SCP2=L
SCP1=L, SCP2=H
SCP1=H, SCP2=H
2FSC

- **Pin function (JCS0001)**

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Signal aspect</th><th>Description</th></tr>
<tr><td>1</td><td>TEST6</td><td>O</td><td>–</td><td>Test terminal</td></tr>
<tr><td>2</td><td>4FSCI</td><td>I</td><td>⊓⊔</td><td>Input terminal for internal oscillator (4 times frequency as high as subcarrier by crystal or LC oscillation)</td></tr>
<tr><td>3</td><td>4FSCO</td><td>O</td><td>⊓⊔</td><td>Output terminal for internal oscillator (4 times frequency as high as subcarrier by crystal or LC oscillation)</td></tr>
<tr><td>4</td><td>2FSCO</td><td>O</td><td>⊓⊔</td><td>For output of 2 times frequency as high as subcarrier</td></tr>
<tr><td>5</td><td>TVMD1</td><td>I</td><td>–</td><td rowspan="3">To select TV system. The following combinations are prohibited.
<table>
<tr><th></th><th>NTSC</th><th>PAL</th><th>PALM</th><th>SECAM</th></tr>
<tr><td>TVMD1</td><td>L</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>TVMD2</td><td>L</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>TVMD3</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table>
(These terminals are pulled up by internal circuit.)</td></tr>
<tr><td>6</td><td>TVMD2</td><td>I</td><td>–</td></tr>
<tr><td>7</td><td>TVMD3</td><td>I</td><td>–</td></tr>
<tr><td>8</td><td>SCHD</td><td>O</td><td>_⊓_</td><td>H. sync pulse output obtained by countdown of 4 fsc clock
NTSC : 1/910 pulse of 4 fsc signal
PAL : 1/1135 divided pulse in normal. False fH signal of 1/1137 division in V. blanking
PALM : 1/909 divided pulse of 4 fsc signal
SECAM : 1/1128 divided pulse of 4 fsc signal</td></tr>
<tr><td>9</td><td>RPI1</td><td>I</td><td>‾↓_</td><td>Input terminal of phase comparator. Detects fall of input signal. (Terminal pulled up internally)</td></tr>
<tr><td>10</td><td>CPI1</td><td>I</td><td>‾↓_</td><td>Input terminal of phase comparator. Detects fall of input signal. (Terminal pulled up internally)</td></tr>
<tr><td>11</td><td>TEST7</td><td>O</td><td>–</td><td>Test terminal</td></tr>
<tr><td>12</td><td>TEST8</td><td>I</td><td>–</td><td>Test terminal (pulled up internally)</td></tr>
<tr><td>13</td><td>EO1</td><td>O</td><td>–</td><td>Output terminal of phase comparator. Against RPI1, CPI1 is as follows:
Advanced : Low level
Delayed : High level
Same time : High impedance</td></tr>
<tr><td>14</td><td>CNTEN</td><td>I</td><td>–</td><td>To control operation start/stop of horizontal counter (This terminal is internally pulled down.)
H : To start counting
L : To stop counting</td></tr>
<tr><td>15</td><td>CLKO</td><td>O</td><td>⊓⊔</td><td>Output of 4 times frequency as high as subcarrier under control of CKCLT (pin 16).</td></tr>
<tr><td>16</td><td>CLCLT</td><td>I</td><td>–</td><td>To control CLKO output (This terminal is internally pulled up.).
L : Output of 4 times frequency as high as subcarrier
H : Fixed to High level</td></tr>
<tr><td>17</td><td>GND</td><td>–</td><td>–</td><td>GND</td></tr>
<tr><td>18</td><td>VDD</td><td>–</td><td>–</td><td>+5 V input</td></tr>
<tr><td>19</td><td>EO2</td><td>O</td><td>–</td><td>Output terminal of phase comparator. Against RPI2, CPI2 is as follows:
Advanced : Low level
Delayed : High level
Same time : High impedance</td></tr>
<tr><td>20</td><td>TEST4</td><td>I</td><td>–</td><td>Test terminal (pulled up internally)</td></tr>
<tr><td>21</td><td>TEST3</td><td>I</td><td>–</td><td>Test terminal (pulled up internally)</td></tr>
<tr><td>22</td><td>CPI2</td><td>I</td><td>‾↓_</td><td>Input terminal of phase comparator. Detects fall of input. (Terminal pulled up internally)</td></tr>
<tr><td>23</td><td>RPI2</td><td>I</td><td>‾↓_</td><td>Input terminal of phase comparator. Detects fall of input. (Terminal pulled up internally)</td></tr>
<tr><td>24</td><td>NANDO</td><td>O</td><td>–</td><td>NAND gate output terminal</td></tr>
<tr><td>25</td><td>NANDI1</td><td>I</td><td>–</td><td>NAND gate input terminal. (Must be fixed to Low or High level when unused.)</td></tr>
<tr><td>26</td><td>NANDI2</td><td>I</td><td>–</td><td>NAND gate input terminal. (Must be fixed to Low or High level when unused.)</td></tr>
<tr><td>27</td><td>INV3O</td><td>O</td><td>–</td><td>Inverter gate pulse ouutput</td></tr>
<tr><td>28</td><td>INV3I</td><td>I</td><td>–</td><td>Inverter input</td></tr>
<tr><td>29</td><td>INV2O</td><td>O</td><td>–</td><td>Inverter output</td></tr>
<tr><td>30</td><td>INV2I</td><td>I</td><td>–</td><td>Inverter input</td></tr>
<tr><td>31</td><td>INV1O</td><td>O</td><td>–</td><td>Inverter output</td></tr>
<tr><td>32</td><td>INV1I</td><td>I</td><td>–</td><td>Inverter input</td></tr>
<tr><td>33</td><td>NC</td><td>–</td><td>–</td><td>Not connected</td></tr>
</table>

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Signal aspect</th><th>Description</th></tr>
<tr><td>34</td><td>DRST</td><td>I</td><td>—</td><td>To select reset manner of subcarrier inputted to CFMI terminal
L : Direct reset
H : Synchronous reset
(This terminal is pulled up by internal circuit.)</td></tr>
<tr><td>35</td><td>TEST1</td><td>I</td><td>—</td><td>Test terminal (pulled up by internal circuit)</td></tr>
<tr><td>36</td><td>TEST2</td><td>I</td><td>—</td><td>Test terminal (pulled up by internal circuit)</td></tr>
<tr><td>37</td><td>1/4SC</td><td>O</td><td>⊓⊔</td><td>1/4 counted down output of subcarrier</td></tr>
<tr><td>38</td><td>SC</td><td>O</td><td>⊓⊔</td><td>Subcarrier output. Reset method is selectable by DRST.</td></tr>
<tr><td>39</td><td>VDD</td><td>—</td><td>—</td><td>+5 V input</td></tr>
<tr><td>40
41</td><td>SCPC2
SCPC1</td><td>I
I</td><td>—
—</td><td>To select phase of SC output (Terminals are pulled up by internal circuit.)
<table>
<tr><td>SCPC1</td><td>L</td><td>H</td><td>L</td><td>H</td></tr>
<tr><td>SCPC2</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
<tr><td>SC</td><td>0°</td><td>90°</td><td>180°</td><td>270°</td></tr>
</table></td></tr>
<tr><td>42</td><td>GND</td><td>—</td><td>—</td><td>GND</td></tr>
<tr><td>43</td><td>CFMI</td><td>I</td><td>¯_</td><td>Color frame pulse input (This terminal is pulled up by internal circuit.)</td></tr>
<tr><td>44</td><td>TEST5</td><td>I</td><td>—</td><td>Test terminal (pulled up by internal circuit)</td></tr>
</table>

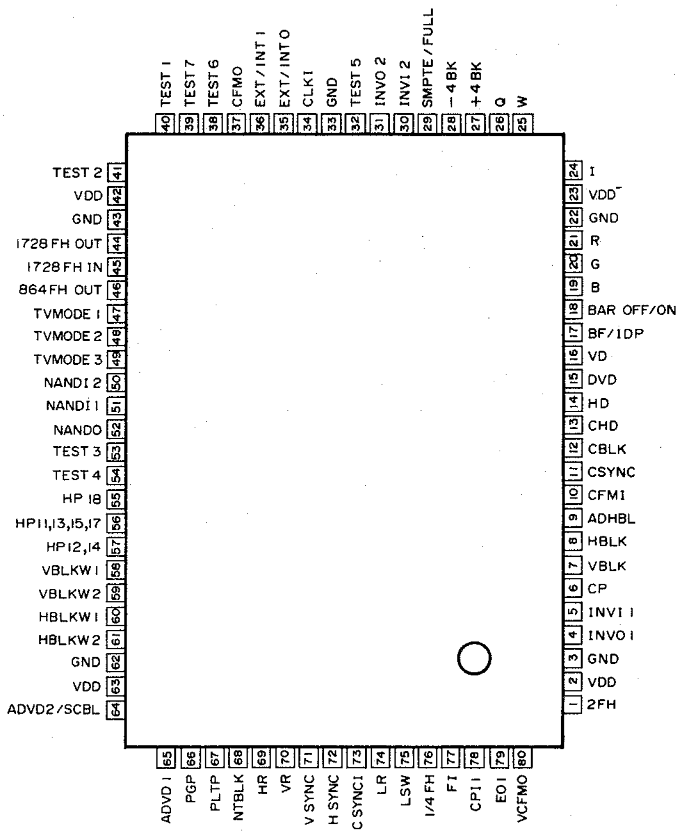
■ AN6367S 【MATSUSHITA】
(Color Signal Processing Circuit)


22
21
20
19
18
17
16
15
14
13
12
PB
P/W
Rec.
SW
PB
PB Burst 6dB down
Rec. Burst 6dB up
Main BM
Rec. Out. Amp.
PB Out. Amp.
ACC
PB
Rec.
Killer P-Comp
Schmitt
VCO
Rec.
PB
APC P-Comp
70° Shifter
Rec./PB Det.
ACC Det.
X-tal VCO
Burst Gate Det.
Sub B.M.
N/P/S Mode Det.
1
2
3
4
5
6
7
8
9
10
11

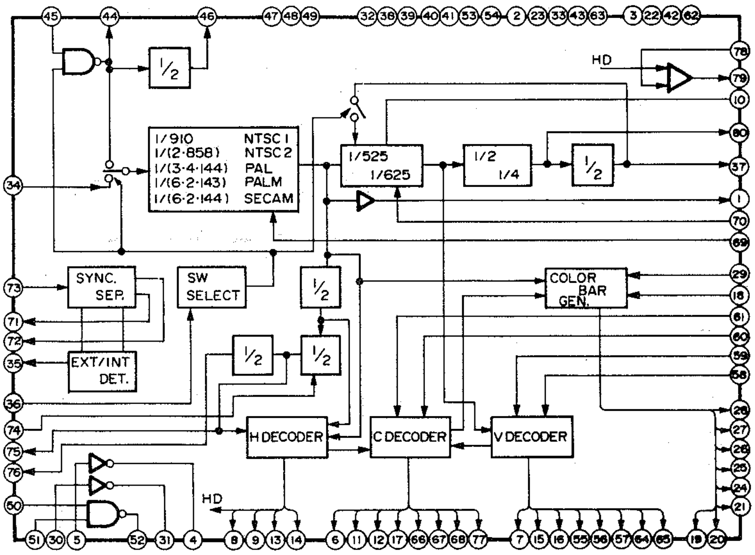
■ Pin function

Pin No.	Pin Name	Pin No.	Pin Name
1	PB Chroma Input Rec. Changeover Input	12	VCO Frequency Adjustment
2	ACC Burst Det.	13	VCO Control Terminal
3	ACC Ref. Level	14	Chroma Output
4	X'tal Osc. Input	15	X'tal APC control Terminal
5	X'tal Osc. Output	16	PB Main BM Output
6	Burst Gate Pulse Input	17	GND
7	Sub BM Output	18	Main BM Input
8	V_{CC}	19	Killer Control Terminal
9	Sub BM Input	20	ACC Input
10	NTSC/PAL/SECAM Mode Changeover Input	21	ACC Output
11	VCO Output	23	3.58MHz Chroma Input

■ JCS0002 【JVC】
(SSG)



40 TEST 1
39 TEST 7
38 TEST 6
37 CFMO
36 EXT/INT 1
35 EXT/INT O
34 CLK I
33 GND
32 TEST 5
31 INVO 2
30 INVI 2
29 SMPTE/FULL
28 −4BK
27 +4BK
26 Q
25 W
41 TEST 2
42 VDD
43 GND
44 1728FH OUT
45 1728FH IN
46 864FH OUT
47 TVMODE 1
48 TVMODE 2
49 TVMODE 3
50 NANDI 2
51 NANDI 1
52 NANDO
53 TEST 3
54 TEST 4
55 HP 18
56 HP11,13,15,17
57 HP12,14
58 VBLKW1
59 VBLKW2
60 HBLKW1
61 HBLKW2
62 GND
63 VDD
64 ADVD2/SCBL
24 I
23 VDD
22 GND
21 R
20 G
19 B
18 BAR OFF/ON
17 BF/IDP
16 VD
15 DVD
14 HD
13 CHD
12 CBLK
11 CSYNC
10 CFMI
9 ADHBL
8 HBLK
7 VBLK
6 CP
5 INVI 1
4 INVO 1
3 GND
2 VDD
1 2FH
65 ADVD1
66 PGP
67 PLTP
68 NTBLK
69 HR
70 VR
71 V SYNC
72 H SYNC
73 C SYNCI
74 LR
75 LSW
76 1/4 FH
77 FI
78 CPI1
79 EOI
80 VCFMO



1/2
1/910 NTSC 1
1/(2·858) NTSC 2
1/(3·4·144) PAL
1/(6·2·143) PALM
1/(6·2·144) SECAM
1/525
1/625
1/2
1/4
1/2
HD
SYNC. SEP.
SW SELECT
EXT/INT DET.
1/2
1/2
1/2
COLOR BAR GEN.
H DECODER
C DECODER
V DECODER
HD
45
44
46
47 48 49
32 38 39 40 41 53 54
2 23 33 43 63
3 22 42 62
78
79
10
80
37
1
70
69
29
18
61
60
59
58
26
27
28
25
24
21
34
73
71
72
35
36
74
75
76
50
51 30 5
52 31 4
8 9 13 14
6 11 12 17 66 67 68 77
7 15 16 55 56 57 64 65
19 20

- **Pin function (JCS0002)**

Pin No.	Symbol	I/O	Signal aspect	Description
1	2FH	O	| | |	Double frequency horizontal sync signal output

NTSC 1	NTSC 2	PAL	PALM	SECAM	
31.468527	31.468531	31.25	31.468531	31.25	(kHz)

Pin No.	Symbol	I/O	Signal aspect	Description
2	VDD	–	–	+5 V input
3	GND	–	–	GND
4	INVO1	O	–	Inverter gate output
5	INVI1	I	–	Inverter gate input
6	CP	O	‾|_|‾	Clamp pulse output
7	VBLK	O	‾|_|‾	Vertical blanking pulse output (pulse width is switchable by VBLKW1 and VBLKW2)
8	HBLK	O	‾|_|‾	Horizontal blanking pulse output (pulse width is switchable by HBLKW1 and HBLKW2)
9	ADHBL	O	‾|_|‾	Pulse faster in front porch fall than horizontal blanking pulse
10	CFMI	O	‾_	Color frame pulse input for color frame control with external synchronization. In NTSC1, enabled when EXT/INTI is High level. (This terminal is internally pulled up.)
11	CSYNC	O	‾|_|‾	Composite sync signal outout
12	CBLK	O	‾|_|‾	Composite blanking pulse output
13	CHD	O	‾|_|‾	Horizontal drive signal for control of camera's scan timing
14	HD	O	‾|_|‾	Horizontal timing reference pulse synchronizing with beginning of every line
15	DVD	O	‾|_|‾	Vertical timing pulse behing VD pulse. For control of camera's scan timing as well as for wake-up regulation of sawtooth waveform of vertical deflection circuit
16	VD	O	‾|_|‾	Vertical timing reference pulse synchronized with beginning of every field
17	BF/IDP	O	‾|_|‾	NTSC, PAL : Burst flag pulse SECAM : For insertion of color distrimination signal for every line in vertical blanking period
18	BAR OFF/ON	I	–	For control of color bars signal output (G, B, I, Q, W, +4BK, –4BK)

Terminal logic	Function
L	Output color bars control signal (R, G, B, I, Q, W, +4BK, –4BK)
H	Always Low level

(This terminal is internally pulled up.)

Pin No.	Symbol	I/O	Signal aspect	Description
19	B	O	_|‾|_	Color bars signal output
20	G	O	_|‾|_	
21	R	O	_|‾|_	

	BAR	SMPTE/FULL	B	G	R
NTSC 1	H	X	L	L	L
NTSC 2	L	X	_|‾|_	_|‾|_	_|‾|_
PAL	H	X	L	L	L
	L	X	_|‾|_	_|‾|_	_|‾|_
PALM	H	X	L	L	L
	L	X	_|‾|_	_|‾|_	_|‾|_
SECAM	H	X	L	L	L
	L	X	_|‾|_	_|‾|_	_|‾|_

Pin No.	Symbol	I/O	Signal aspect	Description
22	GND	–	–	GND
23	VDD	–	–	+5 V input
24	I	O	_|‾|_	Color bars signal output
25	W	O	_|‾|_	
26	Q	O	_|‾|_	
27	+4BK	O	_|‾|_	
28	–4BK	O	_|‾|_	

	BAR	SMPTE/FULL	I	W	Q	+4BK	–4BK
NTSC 1	H	X	L	L	L	L	L
NTSC 2	L	H	_|‾|_	_|‾|_ (correspond. to 75%)	_|‾|_	_|‾|_	_|‾|_
	L	L	L	L	L	L	L
PAL	H	X	L	L	L	L	L
	L	H	_|‾|_	_|‾|_ (correspond. to 75%)	_|‾|_	_|‾|_	_|‾|_
	L	L	L	_|‾|_ (correspond.to 100%)	L	L	L
PALM	H	X	L	L	L	L	L
	L	H	_|‾|_	_|‾|_ (correspond. to 75%)	_|‾|_	_|‾|_	_|‾|_
	L	L	L	_|‾|_ (correspond.to 100%)	L	L	L
SECAM	H	X	L	L	L	L	L
	L	H	_|‾|_	_|‾|_ (correspond. to 75%)	_|‾|_	_|‾|_	_|‾|_
	L	L	L	L	L	L	L

<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Signal aspect</th><th>Description</th></tr>
<tr><td>29</td><td>SMPTE/ FULL</td><td>I</td><td>–</td><td>SMPTE/FULL FIELD mode switching pulse input for color bars signal
L : FULL FIELD mode
H : SMPTE mode
(Effective only when BAR OFF/ON is Low level. This terminal is internally pulled up.)</td></tr>
<tr><td>30</td><td>INVI2</td><td>I</td><td>–</td><td>Inverter gate input terminal</td></tr>
<tr><td>31</td><td>INVO2</td><td>O</td><td>–</td><td>Inverter gate output terminal</td></tr>
<tr><td>32</td><td>TEST5</td><td>I</td><td>–</td><td>Test terminal. (This terminal is pulled up by internal circuit.)</td></tr>
<tr><td>33</td><td>GND</td><td>–</td><td>–</td><td>GND</td></tr>
<tr><td>34</td><td>CLKI</td><td>I</td><td>–</td><td>4 fsc clock pulse input
<table>
<tr><th>TVMODE1</th><th>TVMODE2</th><th>TVMODE3</th><th>EXT/INTI</th><th>CLKI</th></tr>
<tr><td>L</td><td>L</td><td>L</td><td>L</td><td>Enabled</td></tr>
<tr><td colspan="4">In other modes than the above</td><td>Prohibited</td></tr>
</table></td></tr>
<tr><td>35</td><td>EXT/ INTO</td><td>O</td><td>–</td><td>CSYNCI input detection signal output
H : CSYNCI input present
(Detects V. sync signal from CSYNCI signal and detects more than 200 H. sync signals from 1 V. sync period.)
L : CSYNCI input absent
(Detects no H. sync signal for 8 fields.)</td></tr>
<tr><td>36</td><td>EXT/ INTI</td><td>I</td><td>–</td><td>Main clock selector terminal (pulled down internally)
In NTSC1 – H : CLKI ㉞ enabled L : 1728 FHIN ㊺ enabled
In other systems – 1728 FHIN ㊺ enabled</td></tr>
<tr><td>37</td><td>CFMO</td><td>O</td><td>‾⊔‾</td><td>Color frame start pulse output
NTSC1, NTSC2 : 4-field period
PAL, PALM, SECAM : 8-field period</td></tr>
<tr><td>38</td><td>TEST6</td><td>I</td><td>–</td><td>Test terminal (pulled up by internal circuit)</td></tr>
<tr><td>39</td><td>TEST7</td><td>O</td><td>–</td><td>Test terminal</td></tr>
<tr><td>40</td><td>TEST1</td><td>I</td><td>–</td><td>Test terminal (pulled up by internal circuit)</td></tr>
<tr><td>41</td><td>TEST2</td><td>I</td><td>–</td><td>Test terminal (pulled up by internal circuit)</td></tr>
<tr><td>42</td><td>VDD</td><td>–</td><td>–</td><td>+5 V</td></tr>
<tr><td>43</td><td>GND</td><td>–</td><td>–</td><td>GND</td></tr>
<tr><td>44</td><td>1728FH OUT</td><td>O</td><td>⊓⊔</td><td>Output terminal for internal oscillator</td></tr>
<tr><td>45</td><td>1728FH IN</td><td>I</td><td>⊓⊔</td><td>Input terminal for internal oscillator</td></tr>
<tr><td>46</td><td>864FH OUT</td><td>O</td><td>⊓⊔</td><td>Half divided output of internal oscillator</td></tr>
<tr><td>47</td><td>TV MODE1</td><td>I</td><td>–</td><td rowspan="3">TV system selector input terminal (pulled up by internal circuit)
<table>
<tr><th></th><th>NTSC1
1820 fh</th><th>NTSC2
1716 fh</th><th>PAL
1728 fh</th><th>PALM
1716 fh</th><th>SECAM
1728 fh</th></tr>
<tr><td>TV MODE1</td><td>L</td><td>H</td><td>L</td><td>L</td><td>H</td></tr>
<tr><td>TV MODE2</td><td>L</td><td>L</td><td>H</td><td>L</td><td>L</td></tr>
<tr><td>TV MODE3</td><td>L</td><td>L</td><td>L</td><td>H</td><td>H</td></tr>
</table></td></tr>
<tr><td>48</td><td>TV MODE2</td><td>I</td><td>–</td></tr>
<tr><td>49</td><td>TV MODE3</td><td>I</td><td>–</td></tr>
<tr><td>50</td><td>NANDI2</td><td>I</td><td>–</td><td>NAND gate input terminal</td></tr>
<tr><td>51</td><td>NANDI1</td><td>I</td><td>–</td><td>NAND gate input terminal</td></tr>
<tr><td>52</td><td>NANDO</td><td>O</td><td>–</td><td>NAND gate output terminal</td></tr>
<tr><td>53</td><td>TEST3</td><td>I</td><td>–</td><td>Test terminal (pulled up by internal circuit)</td></tr>
<tr><td>54</td><td>TEST4</td><td>I</td><td>–</td><td>Test terminal (pulled up by internal circuit)</td></tr>
<tr><td>55</td><td>HP18</td><td>O</td><td>‾⊔‾</td><td>To output pulse active at 18th H</td></tr>
<tr><td>56</td><td>HP11, 13 15, 17</td><td>O</td><td>‾⊔‾</td><td>To output pulses respectively active at 11th, 13th, 15th and 17th H</td></tr>
<tr><td>57</td><td>HP12, 14</td><td>O</td><td>‾⊔‾</td><td>To output pulses respectively active at 12H and 14th H</td></tr>
</table>

Pin No.	Symbol	I/O	Signal aspect	Description
58	VBLKW1	I	–	To switch V. blanking period of CBLK and VBLK (Terminals are internally pulled up.)
59	VBLKW2	I	–	

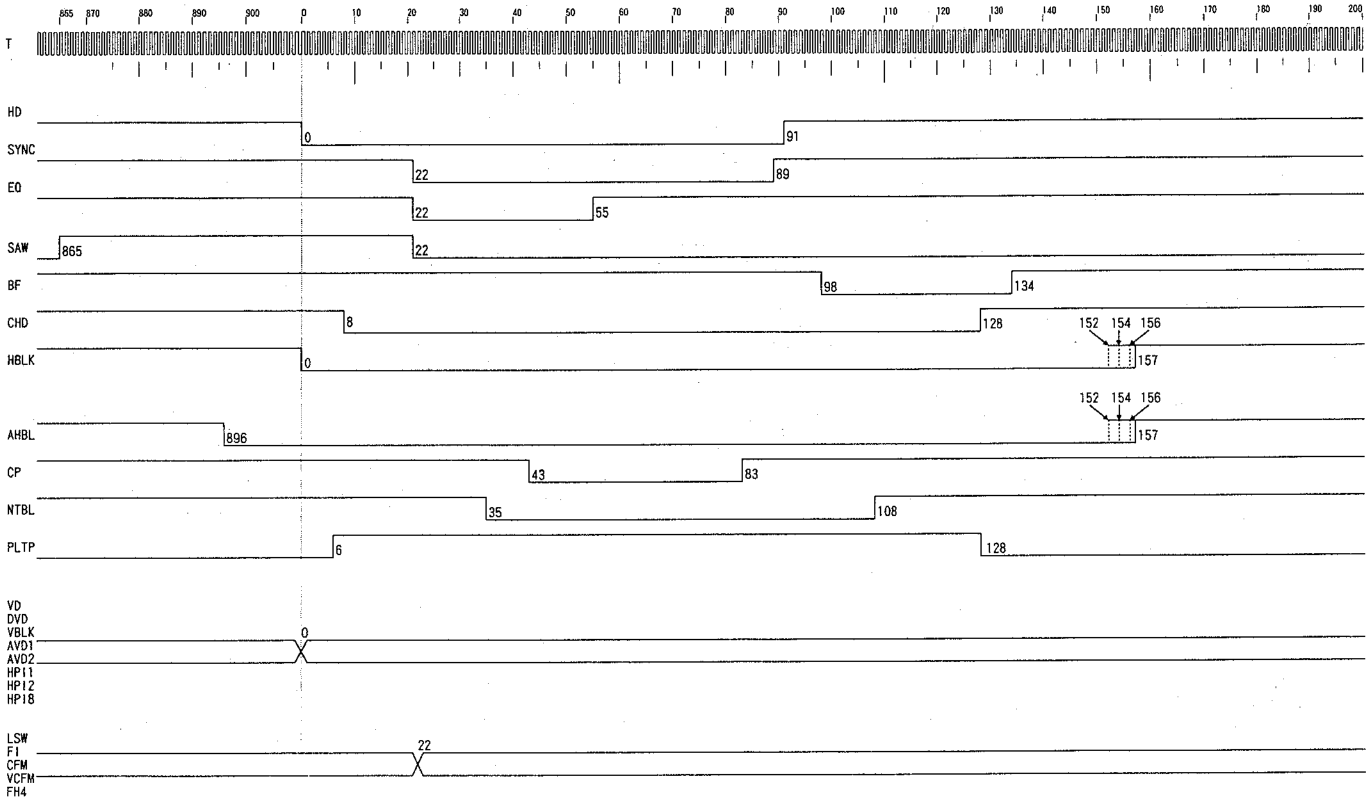
VBLKW1	L	H	L	H
VBLKW2	L	L	H	H
NTSC1	21H	20H	19H	18H
NTSC2	21H	20H	19H	18H
PAL	26H	25H	24H	23H
PALM	21H	20H	19H	18H
SECAM	26H	25H	24H	23H

Pin No.	Symbol	I/O	Signal aspect	Description
60	HBLKW1	I	–	To switch H. blanking period of CBLK, HBLK and ADHBL (Terminals are internally pulled up.)
61	HBLKW2	I	–	

HBLKW1	L	H	L	H
HBLKW2	L	L	H	H
NTSC1	157T	156T	154T	152T
NTSC2	148T	147T	146T	144T
PAL	162T	159T	156T	153T
PALM	148T	147T	146T	144T
SECAM	162T	159T	156T	153T

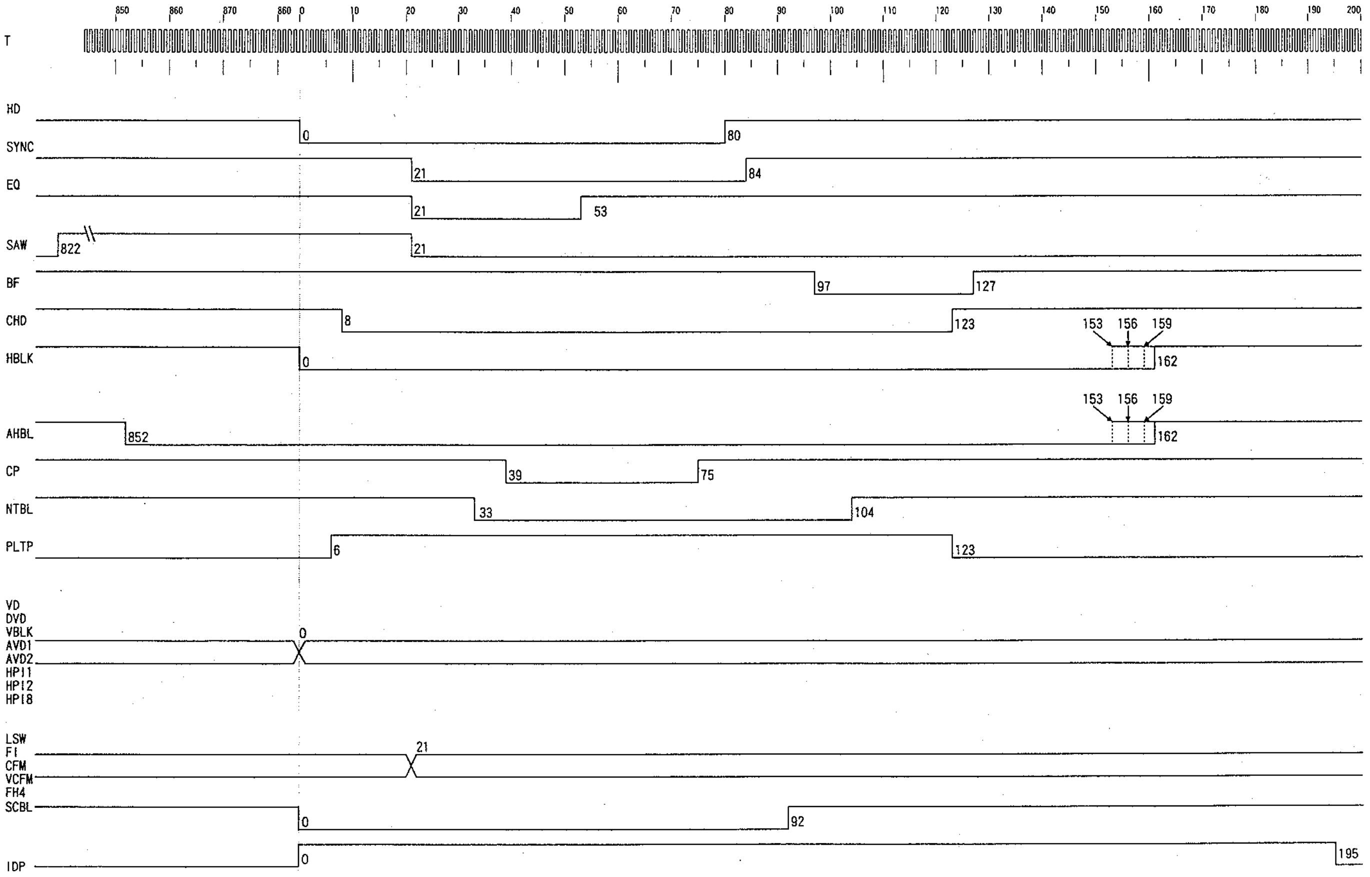
Pin No.	Symbol	I/O	Signal aspect	Description
62	GND	–	–	GND
63	VDD	–	–	+5 V input
64	ADVD2/ SCBL	O	‾┐_┌‾	Output pulse 8 H ahead of VD (Subcarrier blanking pulse in SECAM system)
65	ADVD1	O	‾┐_┌‾	Output pulse 1H ahead of VD
66	PGP	O	‾┐_┌‾	Pilot gate pulse. To correct signal attenuation owing to delay line by coinciding signal levels of 1H delayed signal and original signal with each other.
67	PLTP	O	‾┐_┌‾	Pilot pulse output. To correct signal attenuation owing to delay line by coinciding signal levels of 1H delayed signal and the original with each other.
68	NTBLK	O	‾┐_┌‾	Composite blanking pulse output for pickup tube. (This output is narrower in pulse width and delayed both in horizontal and vertical timing than normal composite blanking pulse.)
69	HR	I	‾┐_	To preset horizontal component 1T before the fall of HD. Although jitters for less than for 140 ns are absorbed, operations against continuous input are not assured. (This terminal is internally pulled up.)
70	VR	I	‾┐_┌‾	External V. sync signal input by slip system. (In NTSC1, EXT/INTI is enabled with High level.) Input in V. sync period resets the hardware, otherwise it stops internal counter for pulse width. (Input system is Schmitt trigger circuit and terminal is pulled up by internal circuit.)
71	VSYNC	O	‾┐_┌‾	Output of V. sync signal which is synchronously separated from composite sync signal inputted through CSYNCI. This output includes no equalizing pulse.
72	HSYNC	O	‾┐_┌‾	Output of H. sync signal which is synchronously separated from composite sync signal inputted through CSYNCI. This output includes no equalizing pulse.
73	CSYNCI	I	‾┐_┌‾	Composite sync signal input for sync separation. (Input system is Schmitt trigger circuit and terminal is pulled up by internal circuit.)
74	LR	I	‾┐_┌‾	For asynchronous preset of LSW with Low input level. (In NTSC1, it is enabled when EXT/INTI is High.) Vertical BF timing is available, however, it is not synchronized unless it is well-timed horizontally. (Input system is Schmitt trigger circuit and terminal is pulled up internally.)
75	LSW	O	┌┐_┘	Half divided fh output. (Used as line discrimination signal in PAL and PALM systems)
76	1/4FH	O	┌┐_┘	Half divided LSW output. (Corresponding to 1/2 offset in PAL)
77	FI	O	–	Field index output L : Field in which both falls of HD and VD pulses coincide with. H : Field in which falls of HD and VD pulses come off 0.5 H each other.
78	CPI1	I	‾┐_	Input terminal for digital phase comparator. Falls of input are detected. (This terminal is pulled up by internal circuit.)
79	EO1	O	–	Input terminal for digital phase comparator. In comparison with front porch of internal HD pulse, CPI1 input is as follows: Advanced : Low Delayed : High Same time : High impedance
80	VCFMO	O		Color frame pulse output exclusive for VTR. Period is 2 fields in NTSC1, NTSC2 and PALM while 4 fields in PAL and SECAM.

NTSC H-TIMMING



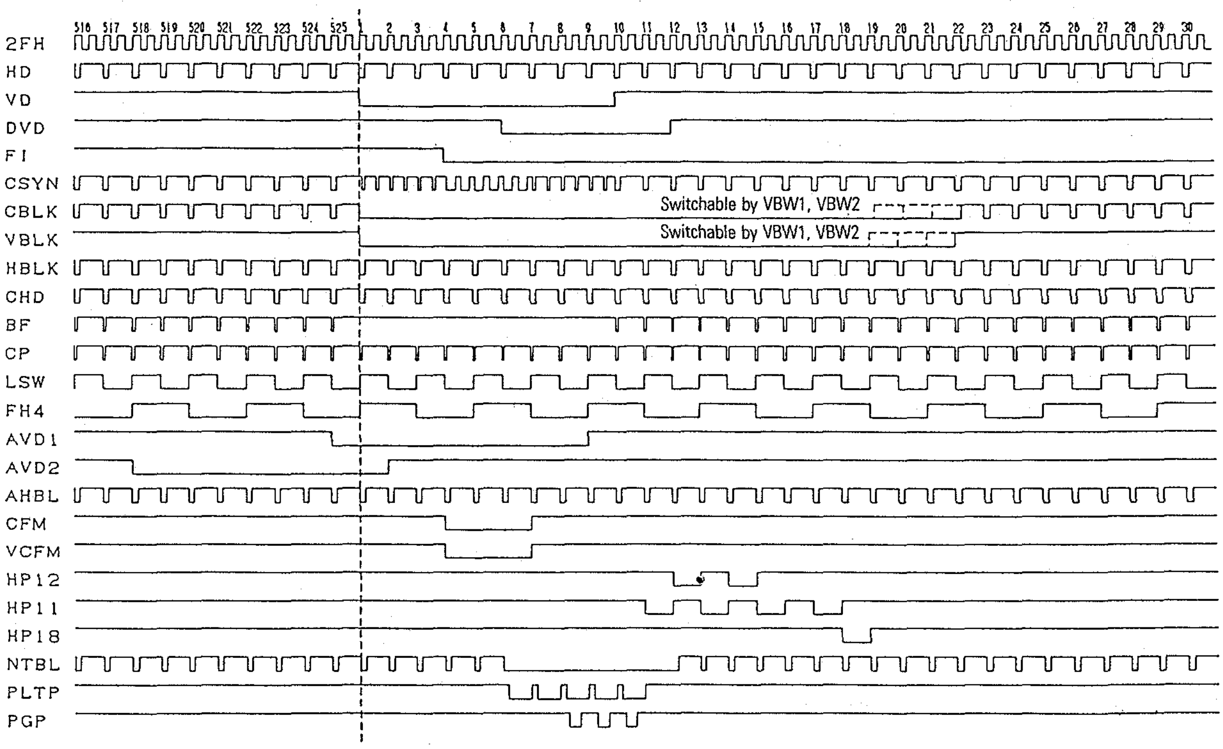
865 870 880 890 900 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
T
HD
0
91
SYNC
22
89
EQ
22
55
SAW
865
22
BF
98
134
CHD
8
128
152 154 156
HBLK
0
157
152 154 156
AHBL
896
157
CP
43
83
NTBL
35
108
PLTP
6
128
VD
DVD
VBLK
AVD1
AVD2
HPI1
HPI2
HPI8
0
LSW
FI
CFM
VCFM
FH4
22

PAL H-TIMMING

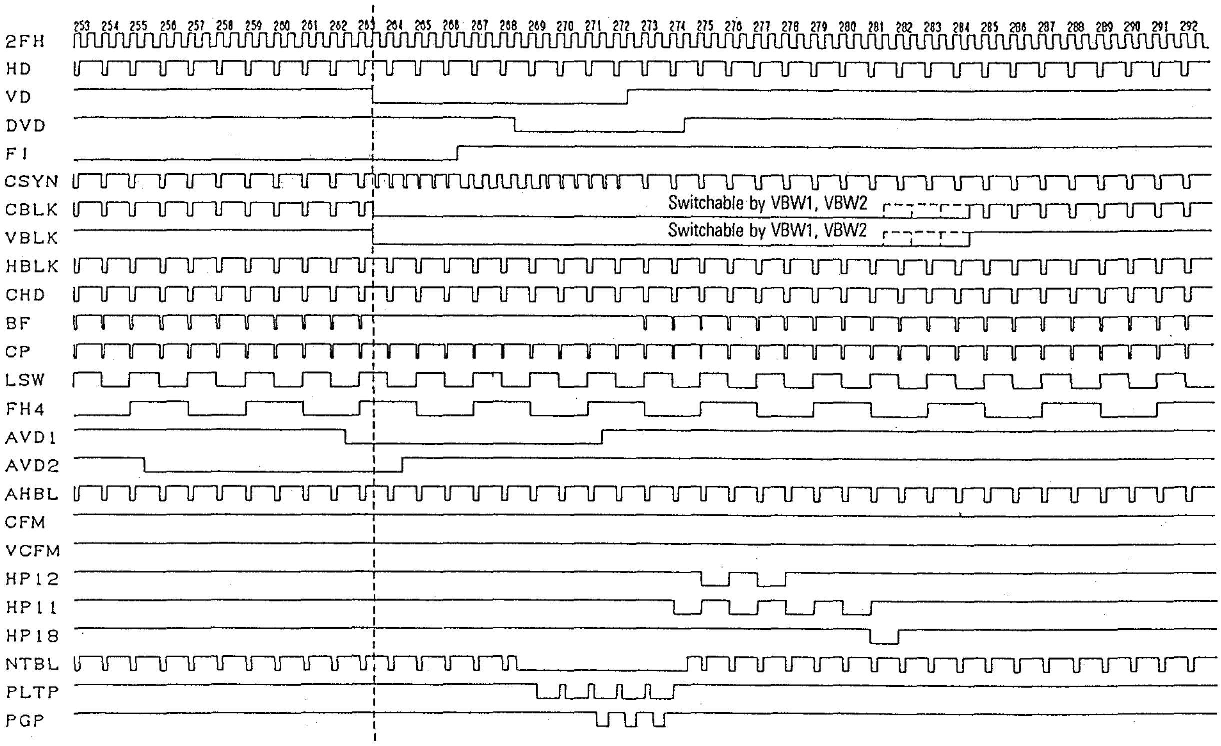


850 860 870 860 0 10 20 30 40 50 60 70 80 90 100 110 120 130 140 150 160 170 180 190 200
T
HD
0
80
SYNC
21
84
EQ
21
53
SAW
822
21
BF
97
127
CHD
8
123
153 156 159
HBLK
0
162
153 156 159
AHBL
852
162
CP
39
75
NTBL
33
104
PLTP
6
123
VD
DVD
VBLK
AVD1
AVD2
HPI1
HPI2
HPI8
0
LSW
FI
CFM
VCFM
FH4
21
SCBL
0
92
IDP
0
195

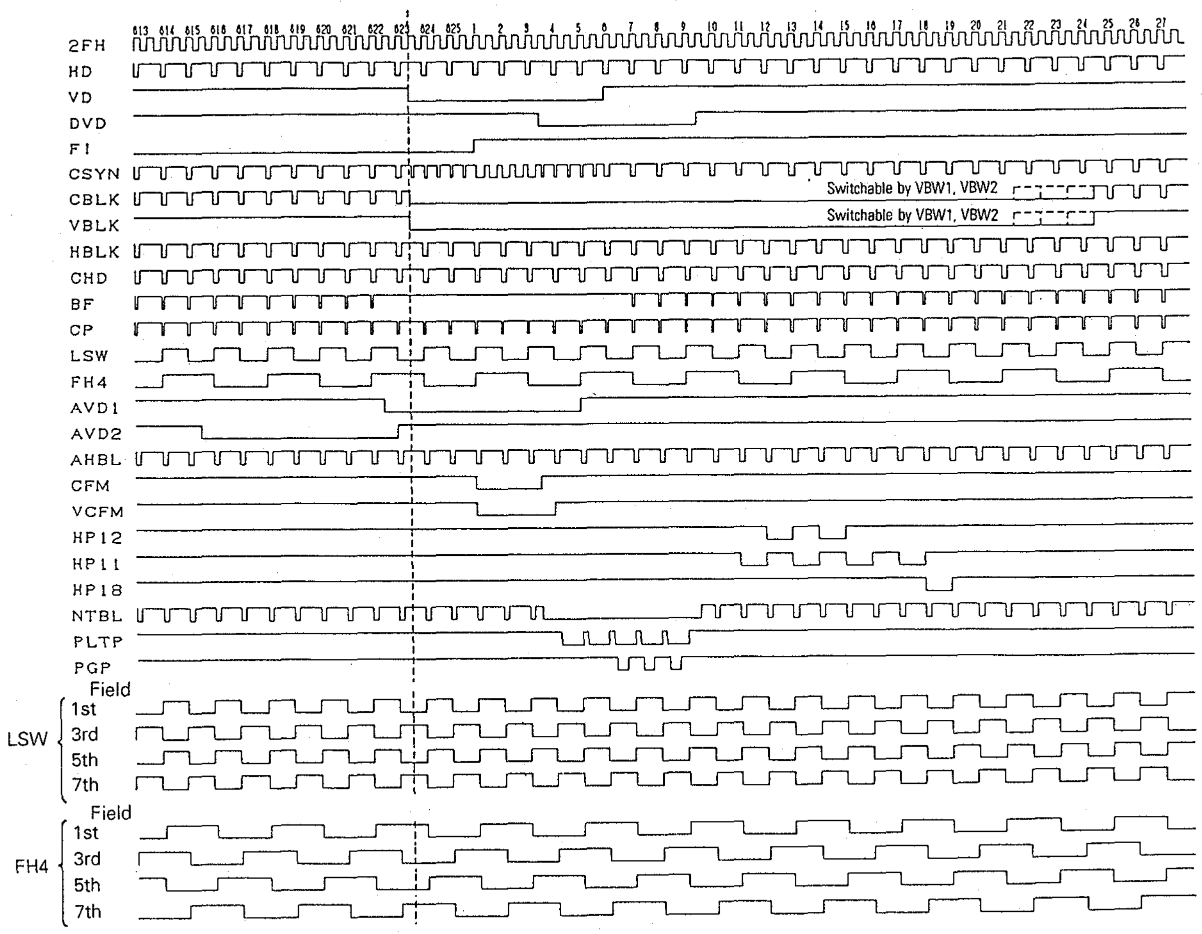
NTSC V-TIMMING (1st field)


516 517 518 519 520 521 522 523 524 525 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
2FH
HD
VD
DVD
FI
CSYN
CBLK
VBLK
HBLK
CHD
BF
CP
LSW
FH4
AVD1
AVD2
AHBL
CFM
VCFM
HP12
HP11
HP18
NTBL
PLTP
PGP
Switchable by VBW1, VBW2
Switchable by VBW1, VBW2

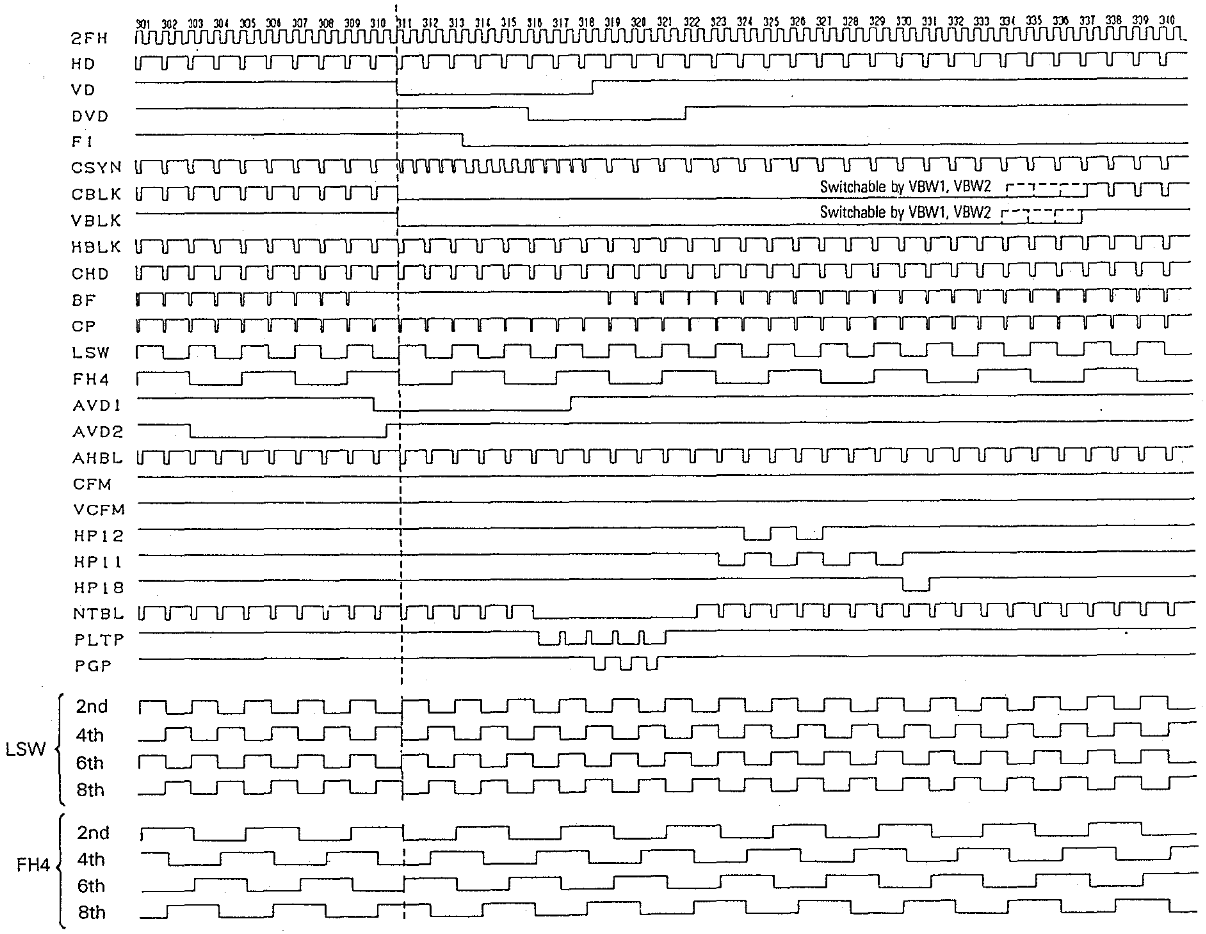
NTSC V-TIMMING (2nd field)


253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292
2FH
HD
VD
DVD
FI
CSYN
CBLK
VBLK
HBLK
CHD
BF
CP
LSW
FH4
AVD1
AVD2
AHBL
CFM
VCFM
HP12
HP11
HP18
NTBL
PLTP
PGP
Switchable by VBW1, VBW2
Switchable by VBW1, VBW2

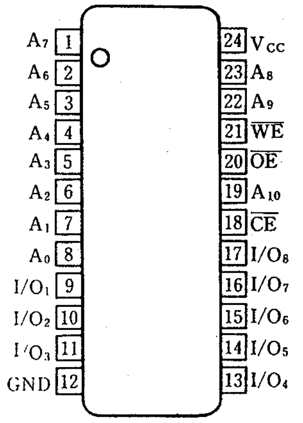
PAL V-TIMMING (1, 3, 5, 7 field)


613 614 615 616 617 618 619 620 621 622 623 624 625 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27
2FH
HD
VD
DVD
FI
CSYN
CBLK
VBLK
HBLK
CHD
BF
CP
LSW
FH4
AVD1
AVD2
AHBL
CFM
VCFM
HP12
HP11
HP18
NTBL
PLTP
PGP
Switchable by VBW1, VBW2
Switchable by VBW1, VBW2
Field
1st
3rd
5th
7th
LSW
Field
1st
3rd
5th
7th
FH4

PAL V-TIMMING (2, 4, 6, 8 field)

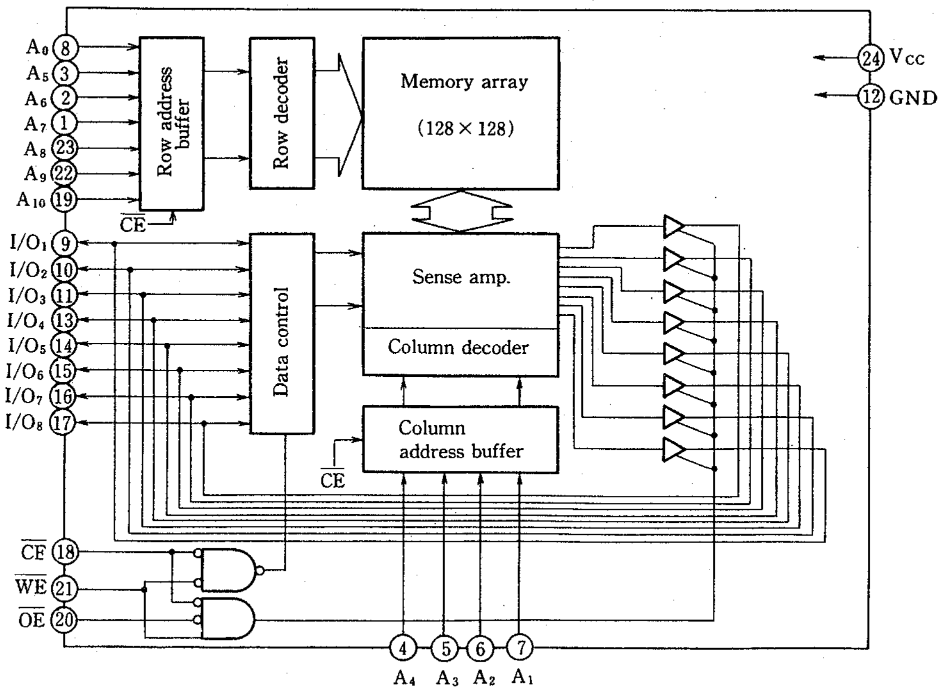

301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340
2FH
HD
VD
DVD
FI
CSYN
CBLK
VBLK
HBLK
CHD
BF
CP
LSW
FH4
AVD1
AVD2
AHBL
CFM
VCFM
HP12
HP11
HP18
NTBL
PLTP
PGP
Switchable by VBW1, VBW2
Switchable by VBW1, VBW2
2nd
4th
6th
8th
LSW
2nd
4th
6th
8th
FH4

■ LH5116NA-10 【SHARP】
(C-MOS 16K Static RAM)



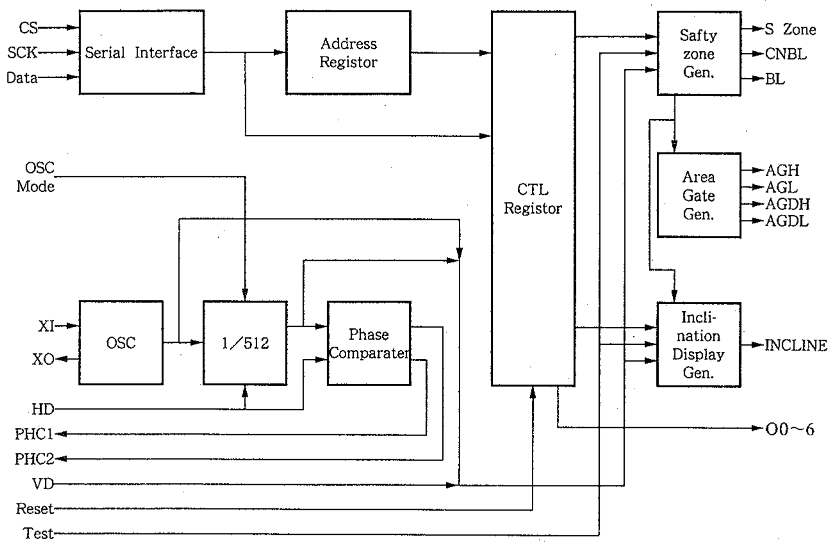
A_7 1
A_6 2
A_5 3
A_4 4
A_3 5
A_2 6
A_1 7
A_0 8
I/O_1 9
I/O_2 10
I/O_3 11
GND 12
24 V_{CC}
23 A_8
22 A_9
21 $\overline{WE}$
20 $\overline{OE}$
19 A_{10}
18 $\overline{CE}$
17 I/O_8
16 I/O_7
15 I/O_6
14 I/O_5
13 I/O_4

Top View



A_0 8
A_5 3
A_6 2
A_7 1
A_8 23
A_9 22
A_{10} 19
Row address buffer
$\overline{CE}$
Row decoder
Memory array
(128 × 128)
24 V_{CC}
12 GND
I/O_1 9
I/O_2 10
I/O_3 11
I/O_4 13
I/O_5 14
I/O_6 15
I/O_7 16
I/O_8 17
Data control
Sense amp.
Column decoder
Column address buffer
$\overline{CE}$
$\overline{CE}$ 18
$\overline{WE}$ 21
$\overline{OE}$ 20
4 5 6 7
A_4 A_3 A_2 A_1

■ JCS0005 【JVC】
(Area Gate Generator)



CS
SCK
Data
Serial Interface
Address Registor
CTL Registor
Safty zone Gen.
S Zone
CNBL
BL
Area Gate Gen.
AGH
AGL
AGDH
AGDL
OSC Mode
XI
XO
OSC
1/512
Phase Comparater
Incli-nation Display Gen.
INCLINE
O0~6
HD
PHC1
PHC2
VD
Reset
Test

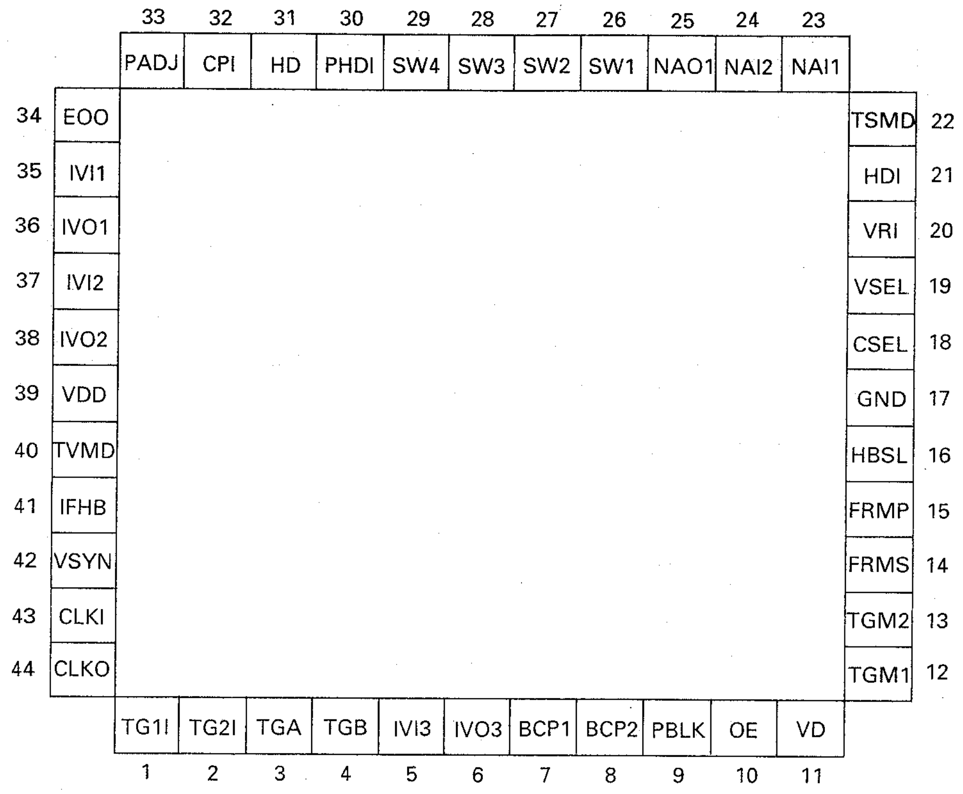
Pin function of JCS0005

All input terminals are internally pulled up.

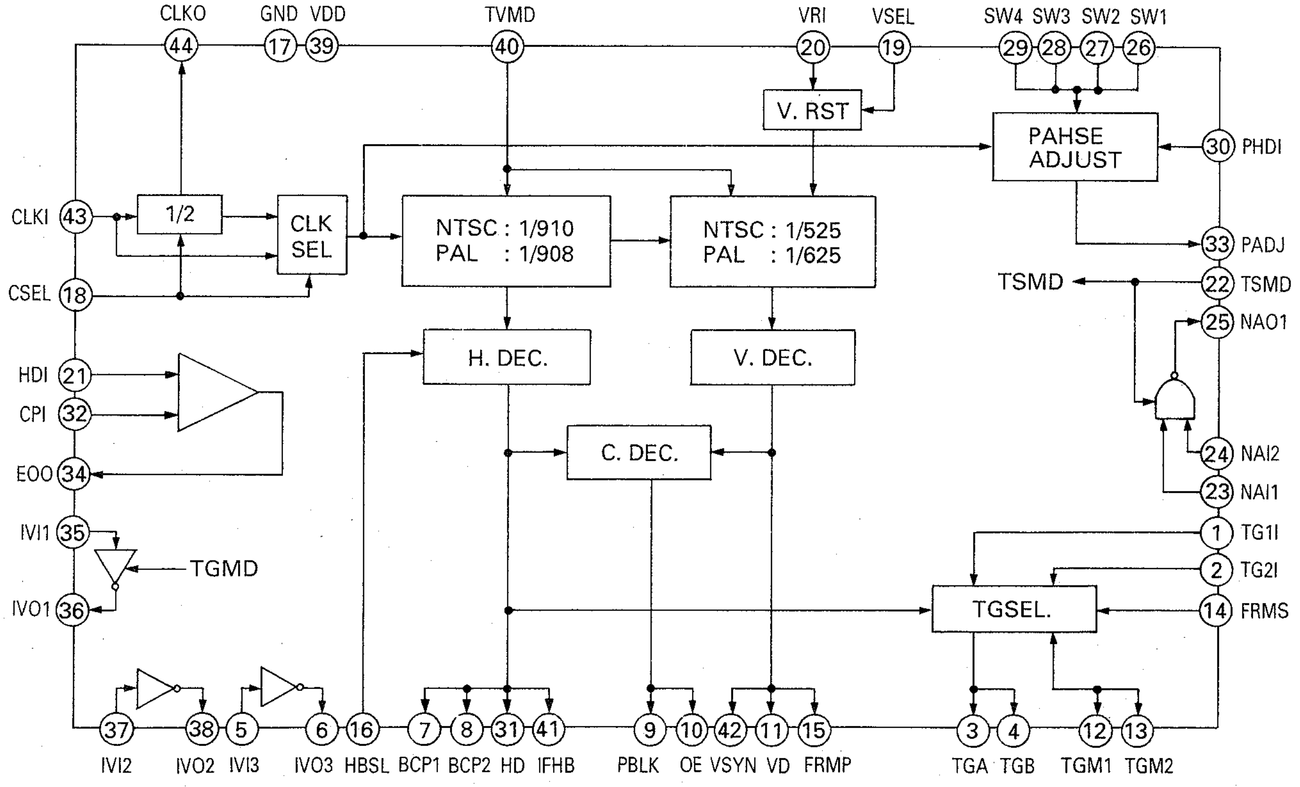
<table>
<tr><th>Pin No.</th><th>Symbol</th><th>I/O</th><th>Function</th></tr>
<tr><td>1</td><td>$\overline{\mathrm{CS}}$</td><td>I</td><td>Chip select terminal of serial input/output.</td></tr>
<tr><td>3</td><td>SCK</td><td>I</td><td>Write-in clock for serial input/output. Data is read at rise of SCK.</td></tr>
<tr><td>5</td><td>DATA</td><td>I</td><td>Serial data input. To start with LSB.</td></tr>
<tr><td>6</td><td>VSS</td><td>—</td><td>GND (power)</td></tr>
<tr><td>7</td><td>OSC MODE</td><td>I</td><td>H : To use internal oscillator. L : To use external clock.</td></tr>
<tr><td>8</td><td>PHC1</td><td>O</td><td>Phase comparison output of internal PLL.
Output level is low when clock is ahead of HD in the phase while it is high when clock is behind HD in the phase. In other period clock has high impedance.</td></tr>
<tr><td>9</td><td>$\overline{\mathrm{PHC2}}$</td><td>O</td><td>Phase comparison output of internal PLL.
Output level is high when clock is ahead of HD in the phase while it is low when clock is behind HD in the phase. In other period clock has high impedance.</td></tr>
<tr><td>11</td><td>XI</td><td>O</td><td>Oscillator input. When external clock is used, it is input to this terminal. External clock must be synchronous with HD. A feedback resistor is built in between XI and XO.</td></tr>
<tr><td>12</td><td>XO</td><td>O</td><td>Oscillator output.</td></tr>
<tr><td>14</td><td>$\overline{\mathrm{O6}}$</td><td>O</td><td>General output 6</td></tr>
<tr><td>16</td><td>$\overline{\mathrm{VD}}$</td><td>I</td><td>Vertical sync. signal input (negative)</td></tr>
<tr><td>17</td><td>$\overline{\mathrm{HD}}$</td><td>I</td><td>Horizontal sync. signal input (negative)</td></tr>
<tr><td>18</td><td>VSS</td><td>—</td><td>GND (power)</td></tr>
<tr><td>19</td><td>VDD</td><td>—</td><td>+5 V power supply</td></tr>
<tr><td>20</td><td>$\overline{\mathrm{RESET}}$</td><td>I</td><td>Reset input. Low level input (for more than 1 μsec at least) at power on inhibits output of AGDL, AGDH, SZONE, INCLINE and turns levels of general outputs $\overline{\mathrm{O0}}$ to $\overline{\mathrm{O6}}$ to low.</td></tr>
<tr><td>21</td><td>$\overline{\mathrm{TEST}}$</td><td>I</td><td>To be used for IC inspection. For use, turn to open or connect with VDD.</td></tr>
<tr><td>22</td><td>SZONE</td><td>O</td><td>Safety zone indication output</td></tr>
<tr><td>23</td><td>INCLINE</td><td>O</td><td>Inclination angle indication output</td></tr>
<tr><td>24</td><td>$\overline{\mathrm{CNBL}}$</td><td>O</td><td>Blanking output for cinema mode</td></tr>
<tr><td>25
27</td><td>AGDL
AGDH</td><td>O
O</td><td>To output area gate in combination 2 bits of AGDL and AGDH. Output can be turned on/off by setting of internal register.
<table>
<tr><th></th><th>AGDL</th><th>AGDH</th></tr>
<tr><td>Area gate 0 period (blanking period)</td><td>O</td><td>O</td></tr>
<tr><td>Area gate 1 period</td><td>O</td><td>I</td></tr>
<tr><td>Area gate 2 period</td><td>I</td><td>O</td></tr>
<tr><td>Area gate 3 period</td><td>I</td><td>I</td></tr>
</table></td></tr>
<tr><td>30</td><td>$\overline{\mathrm{O0}}$</td><td>O</td><td>General output 0</td></tr>
<tr><td>31</td><td>VSS</td><td>—</td><td>GND</td></tr>
<tr><td>33</td><td>$\overline{\mathrm{O1}}$</td><td>O</td><td>General output 1</td></tr>
<tr><td>35</td><td>$\overline{\mathrm{O2}}$</td><td>O</td><td>General output 2</td></tr>
<tr><td>37</td><td>$\overline{\mathrm{O3}}$</td><td>O</td><td>General output 3</td></tr>
<tr><td>39</td><td>$\overline{\mathrm{O4}}$</td><td>O</td><td>General output 4</td></tr>
<tr><td>42</td><td>VSS</td><td>—</td><td>GND (power)</td></tr>
<tr><td>43</td><td>VDD</td><td>—</td><td>+5 V power supply</td></tr>
<tr><td>44</td><td>$\overline{\mathrm{O5}}$</td><td>O</td><td>General output 5</td></tr>
<tr><td>45</td><td>AG4</td><td>O</td><td>H output in area gate 4 period, L output in other period. Blanking is applied by internal BL signal.</td></tr>
<tr><td>46
47</td><td>AGL
AGH</td><td>O
O</td><td>To output area gate in combination of 2 bits of AGL and AGH.
<table>
<tr><th></th><th>AGDL</th><th>AGDH</th></tr>
<tr><td>Area gate 0 period (blanking period)</td><td>O</td><td>O</td></tr>
<tr><td>Area gate 1 period</td><td>O</td><td>I</td></tr>
<tr><td>Area gate 2 period</td><td>I</td><td>O</td></tr>
<tr><td>Area gate 3 period</td><td>I</td><td>I</td></tr>
</table></td></tr>
<tr><td>48</td><td>BL</td><td>O</td><td>H output in blanking period, L output in other period.</td></tr>
</table>

■ JCS0028 【JVC】
(H, V Timing Generator)

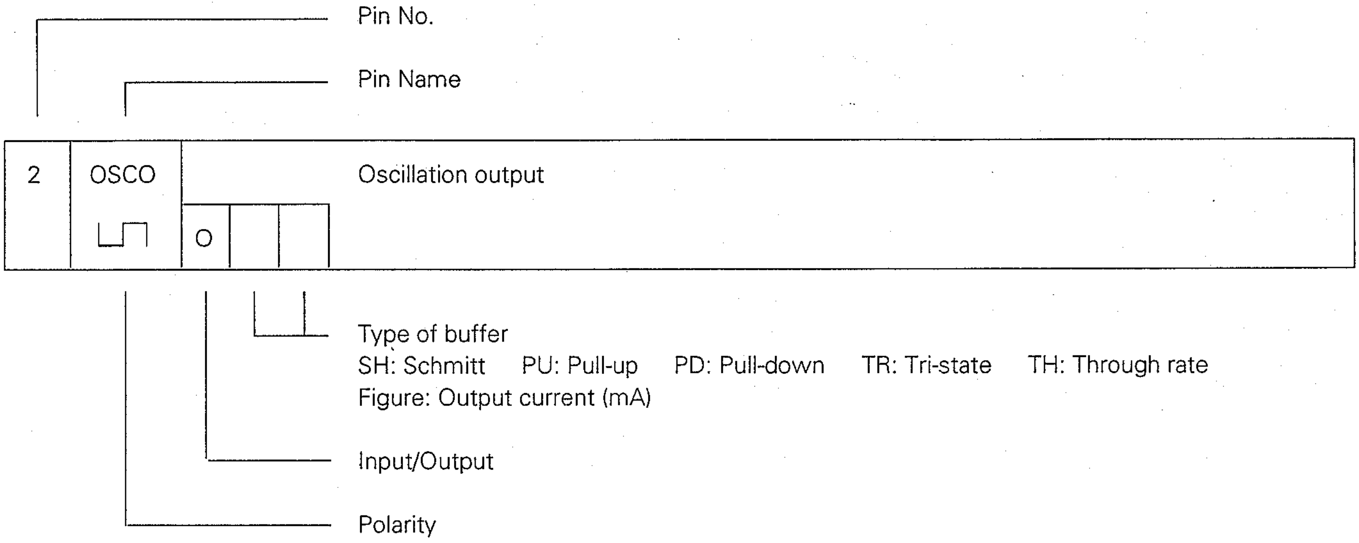
(Top View)


33 PADJ
32 CPI
31 HD
30 PHDI
29 SW4
28 SW3
27 SW2
26 SW1
25 NAO1
24 NAI2
23 NAI1
34 EOO
35 IVI1
36 IVO1
37 IVI2
38 IVO2
39 VDD
40 TVMD
41 IFHB
42 VSYN
43 CLKI
44 CLKO
22 TSMD
21 HDI
20 VRI
19 VSEL
18 CSEL
17 GND
16 HBSL
15 FRMP
14 FRMS
13 TGM2
12 TGM1
1 TG1I
2 TG2I
3 TGA
4 TGB
5 IVI3
6 IVO3
7 BCP1
8 BCP2
9 PBLK
10 OE
11 VD

BLOCK DIAGRAM


CLKO 44
GND 17
VDD 39
TVMD 40
VRI 20
VSEL 19
SW4 29
SW3 28
SW2 27
SW1 26
V. RST
PAHSE ADJUST
30 PHDI
CLKI 43
1/2
CLK SEL
NTSC : 1/910
PAL : 1/908
NTSC : 1/525
PAL : 1/625
33 PADJ
CSEL 18
TSMD
22 TSMD
25 NAO1
HDI 21
CPI 32
H. DEC.
V. DEC.
EOO 34
C. DEC.
24 NAI2
23 NAI1
IVI1 35
TGMD
1 TG1I
2 TG2I
IVO1 36
TGSEL.
14 FRMS
37 IVI2
38 IVO2
5 IVI3
6 IVO3
16 HBSL
7 BCP1
8 BCP2
31 HD
41 IFHB
9 PBLK
10 OE
42 VSYN
11 VD
15 FRMP
3 TGA
4 TGB
12 TGM1
13 TGM2

PIN SPECIFICATIONS


Pin No.
Pin Name
2
OSCO
_|‾|
Oscillation output
O
Type of buffer
SH: Schmitt PU: Pull-up PD: Pull-down TR: Tri-state TH: Through rate
Figure: Output current (mA)
Input/Output
Polarity

No.	Symbol	Description
1	TG1 I ‾|_|‾	Transfer Gate 1 Input I Connect µPD9438AGK (11). If not used, do not change the level.
2	TG2 I ‾|_|‾	Transfer Gate 2 Input I Connect µPD9438AGK (12). If not used, do not change the level.
3	TGA ‾|_|‾	Transfer Gate A Output O 9 Electric charge transfer pulse output from TG1 I (1) for øV1A and øV3A use.
4	TGB ‾|_|‾	Transfer Gate B Output O 9 Electric charge transfer pulse output from TG2 I (2) for øV1B and øV3B use.
5	IVI3 —	Common Invert Input 3 I If not used, do not change level.
6	IVO3 —	Common Invert Output 3 O 9 The invert output of IVI3 (5).
7	BCP1 ‾|_|‾	Black Clamp Pulse 1 O 9 Fixing the black level of CCD output signal. But, outputting per H.
8	BCP2 ‾|_|‾	Black Clamp Pulse 2 O 9 Fixing the black level of CCD output signal. But, outputting per H.

No.	Symbol	Description			
9	PBLK ⎺⎽⎺	Preblanking	O	9	Used in process of picture treatment to blank the compound flying-back lines. This PBLK has a shape of narrow fore edge compared with CBLK.
10	OE —	ODD-EVEN	O	9	The signal to distinguish the ODD and EVEN. L: ODD field, H: EVEN field
11	VD ⎺⎽⎺	Vertical Drive	O	9	The vertical REF. timing, which is included in the pulse set, output ahead of each field.
12	TGM1 —	Read Out Mode 1	I	PD	When both of TGM1 (12) and TGM2 (13) are used, it is possible to set the READ OUT MODE.
13	TGM2 —	Read Out Mode 2	I	PD	
14	FRMS —	Frame Select	I	PD	A/B frame switching terminal for 1 pixel read-out. L: A frame (TG3B, TG3A output only) H: B frame (TG1B, TG1A output only)
15	FRMP —	Frame Pulse	O	9	One cycle of 4 fields output pulse. When connecting to FRMS (14), A/B frame is capable of being selected automatically.
16	HBSL —	Interface Horizontal Blanking Select	I	PU	Position switching of IFHB (41). L: System delay 900 ns approx. H: System delay 450 ns approx.
17	GND	Grounding			
18	CSEL —	Clock Select	I	PD	It is used to select the frequency of input clock. L: 14.318 MHz (NTSC), 14.187 MHz (PAL), H: 28.636 MHz (NTSC), 28.37 MHz (PAL)
19	VSEL —	VD/V SYNC Select	I	PD	It is used to select signals that are input to VRI (20). L: VSYNC signal input, H: VD signal input (PBLK ends before 3H.)
20	VRI ⎺⎽	EXT. Vertical SYNC Input	I	SH	VSYNC/VD signals are selected according to VSEL (19). Depending on the input, the other IC and vertical SYNC may be taken off.
21	HDI (RPI) ⎺⎽	EXT. Horizontal SYNC Input (Ref. input for digital phase comparator)	I	SH	Depending on the input of HD signal, the horizontal SYNC may be taken off. (To detect when the input signal goes off.)
22	TSMD —	Test Mode Switching	I	PO	Normally set to open. L: Normal operation H: Common NAND (23-25) and common invert (35 and 36) become test terminals.

TGM2	TGM1	Read Out Mode Set
L	L	4 pixels read-out (field)
L	H	3 pixels read-out
H	L	2 pixels read-out (frame)
H	H	1 pixel read-out

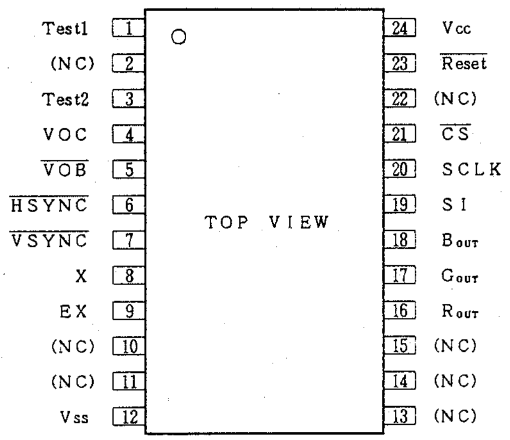
No.	Symbol	Description
23	NAI1 —	Common NAND Input 1 I If not used, fix the level.
24	NAI2 —	Common NAND Input 2 I If not used, fix the level.
25	NAO1 —	Common NAND Output 1 BI 9 The NAND outputs of NAI1 (20) and NAI2 (21).
26	SW1 —	Delay Set 1 1 step = 70 ns approx. I PD
27	SW2 —	Delay Set 2 I PD
28	SW3 —	Delay Set 3 I PD
29	SW4 —	Delay Set 4 I PD

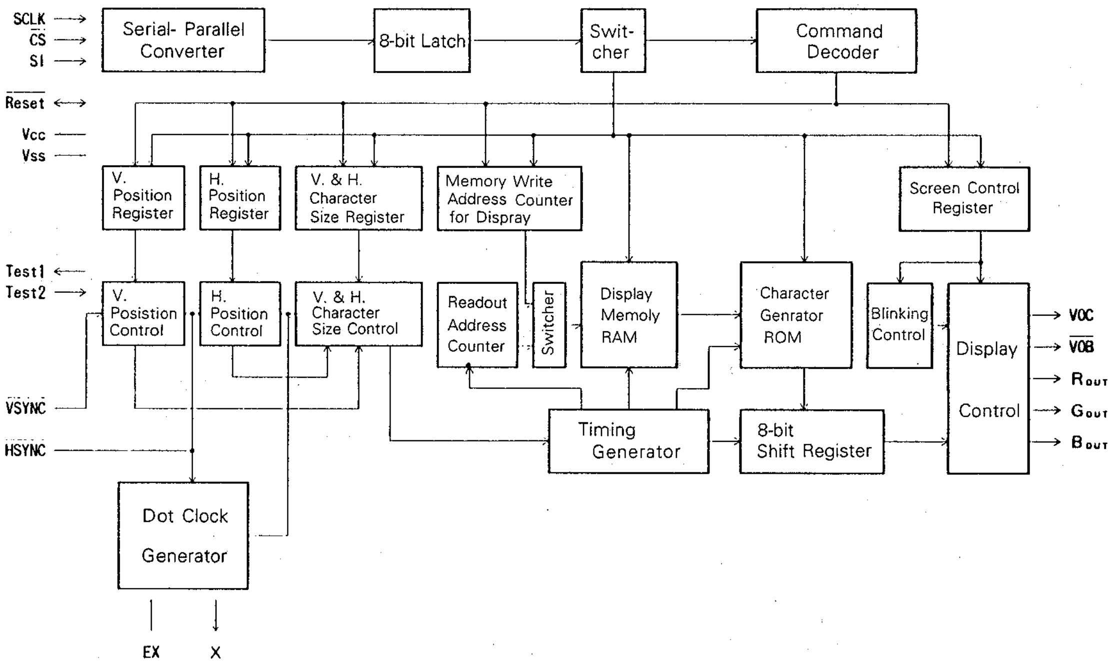
Step	SW4	SW3	SW2	SW1	Count value
1	L	L	L	L	0
2	L	L	L	H	1
3	L	L	H	L	2
4	L	L	H	H	3
5	L	H	L	L	4
6	L	H	L	H	5
7	L	H	H	L	6
8	L	H	H	H	7
9	H	L	L	L	8
10	H	L	L	H	9
11	H	L	H	L	10
12	H	L	H	H	11
13	H	H	L	L	12
14	H	H	L	H	13
15	H	H	H	L	14
16	H	H	H	H	15

No.	Symbol	Description
30	PHDI ‾_	Phase Adj. Input I To detect when the HD input for phase adj. circuit goes off. If not used, fix the level.
31	HD ‾_‾	Horizontal Drive O 13 The horizontal timing signal, which is included in the pulse set, synchronized with start of each line, and the REF. signal used for SYNC.
32	CPI ‾_	Comparison Input for Digital Phase Comparator I SH To detect when the input signal goes off.
33	PADJ ‾_‾	Phase Adj. Output O 9 For outputting 2.3µS width delayed pulse the value of which is set by SW1~SW4 (26, 27, 28 and 29) after PHD1 (30) has gone off.
34	EOO —	Digital Phase Comparison Output O TR 9 CPI's relation with RPI: Same phase: High impedance Leading phase: Low level Delayed phase: High level

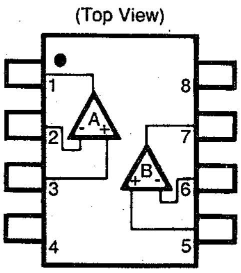
No.	Symbol	Description
35	IVI1 —	Common Invert Input 1 I | | If not used, fix the level.
36	IVO1 —	Common Invert Output 1 BI | 9 | Invert output of IVI1 (35).
37	IVI2 —	Common Invert Input 2 I | | If not used, fix the level.
38	IVO2 —	Common Invert Output 2 O | 9 | Invert output of IVI1 (37).
39	VDD	+5V Power Supply
40	TVMD —	TV Mode Switching I | PD | Switching of NTSC and PAL L: NTSC mode, H: PAL mode
41	IFHB 	Interface Horizontal Blanking O | 9 | The pulse output with narrow leading and later edges compared with HCBLK. The position of output changes depending on HBSL (16).
42	VSYN 	Vertical SYNC. O | 9 | The vertical SYNC output in the period of vertical EQ pulse.
43	CLKI 	Clock Input I | | 28 MHz, 14 MHz clock input can be selected by CSEL (15).
44	CLKO 	Clock Output O | 9 | When 28 MHz is input to CLKI (43), half-divided frequency is output. When 14 MHz is input to CLKI (43), 14 MHz is output.

■ MB89012-109 【FUJITSU】
(TV Display Controler)


Test1 1
(NC) 2
Test2 3
VOC 4
$\overline{\text{VOB}}$ 5
$\overline{\text{HSYNC}}$ 6
$\overline{\text{VSYNC}}$ 7
X 8
EX 9
(NC) 10
(NC) 11
Vss 12
TOP VIEW
24 Vcc
23 $\overline{\text{Reset}}$
22 (NC)
21 $\overline{\text{CS}}$
20 SCLK
19 SI
18 B_{OUT}
17 G_{OUT}
16 R_{OUT}
15 (NC)
14 (NC)
13 (NC)

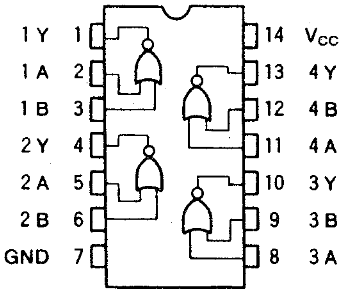

SCLK
$\overline{\text{CS}}$
SI
$\overline{\text{Reset}}$
Vcc
Vss
Test1
Test2
$\overline{\text{VSYNC}}$
$\overline{\text{HSYNC}}$
Serial- Parallel Converter
8-bit Latch
Swit-cher
Command Decoder
V. Position Register
H. Position Register
V. & H. Character Size Register
Memory Write Address Counter for Dispray
Screen Control Register
V. Posistion Control
H. Position Control
V. & H. Character Size Control
Readout Address Counter
Switcher
Display Memoly RAM
Character Genrator ROM
Blinking Control
Display Control
Timing Generator
8-bit Shift Register
Dot Clock Generator
EX
X
VOC
$\overline{\text{VOB}}$
R_{OUT}
G_{OUT}
B_{OUT}

■ MC14577CF 【MOTOROLA】
(Dual Op.Amp)


(Top View)
1
2
3
4
5
6
7
8
A
B

Pin
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. GROUND
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V^+

■ MC74HC02AF 【MOTOROLA】
(Quad 2-Input NOR Gates)

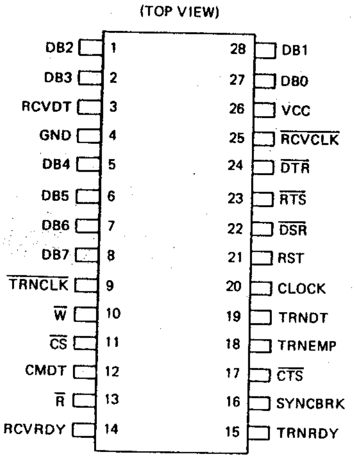

1Y 1
1A 2
1B 3
2Y 4
2A 5
2B 6
GND 7
14 V_{CC}
13 4Y
12 4B
11 4A
10 3Y
9 3B
8 3A

(TOP VIEW)

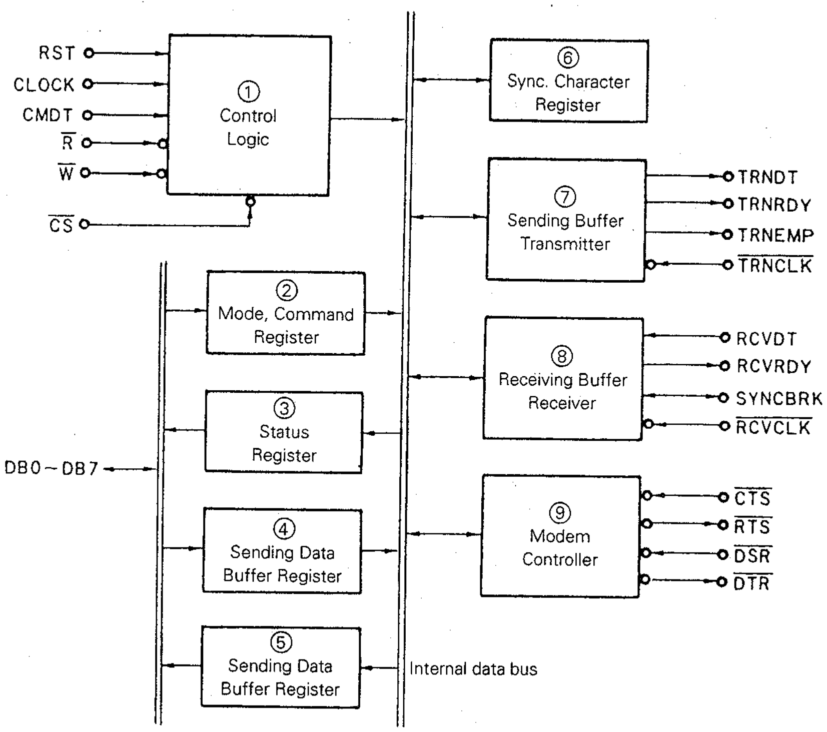
TRUE Table

A	B	Y
L	L	H
L	H	L
H	L	L
H	H	L

■ MB89251APF 【FUJITSU】
(Serial Data Transmiter/Reciever)


(TOP VIEW)
DB2 1
DB3 2
RCVDT 3
GND 4
DB4 5
DB5 6
DB6 7
DB7 8
TRNCLK 9
W 10
CS 11
CMDT 12
R 13
RCVRDY 14
28 DB1
27 DB0
26 VCC
25 RCVCLK
24 DTR
23 RTS
22 DSR
21 RST
20 CLOCK
19 TRNDT
18 TRNEMP
17 CTS
16 SYNCBRK
15 TRNRDY

● Block diagram (MB89251A)


RST
CLOCK
CMDT
R
W
CS
① Control Logic
② Mode, Command Register
③ Status Register
④ Sending Data Buffer Register
⑤ Sending Data Buffer Register
⑥ Sync. Character Register
⑦ Sending Buffer Transmitter
⑧ Receiving Buffer Receiver
⑨ Modem Controller
DB0～DB7
Internal data bus
TRNDT
TRNRDY
TRNEMP
TRNCLK
RCVDT
RCVRDY
SYNCBRK
RCVCLK
CTS
RTS
DSR
DTR

● Pin function of MB89251A (General purpose communication controller)

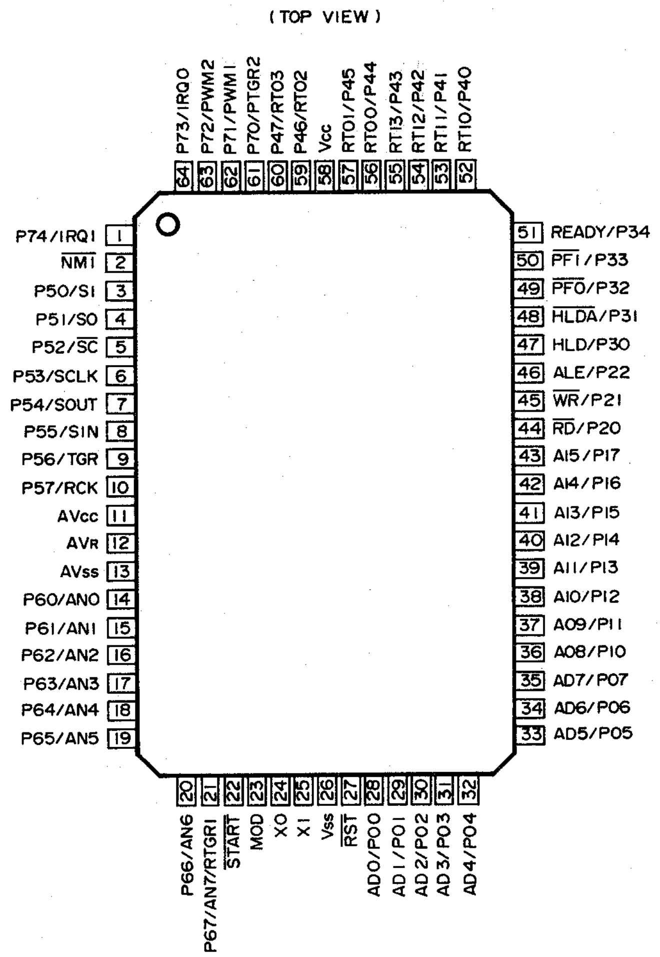
Pin No.	Symbol	Pin Name	I/O	Function
1, 2, 5–8, 27, 28	DB0–DB7	Two-way Data Bus	I/O	Three-state two-way 8 bits data bus used for transmission of sending/receiving signal, mode parameter, operation command, status information, etc.
3	RCVDT	Receiving Data	I	Serial data is received through this terminal. Received signal data is converted into parallel data, which undergoes parity check and is compiled to be transferred to MPU as receiving data.
4	GND	Ground	—	Grounding
9	$\overline{\text{TRNCLK}}$	Transmission Clock	I	Transfer rate of sending data is determined by this signal. In synchronous mode, frequency of this transmission clock is set to the same as baud rate. In start-stop mode, frequency of transmission clock is set to ×1, ×16 or ×64 as high as baud rate of sending data in accordance with setting of mode parameter. Sending data is shifted out at trailing edge of transmission clock.
10	$\overline{\text{W}}$	Write Enable	I	For inputting sending data, mode parameter, operation command through data bus, write enable pulse ("L" level) is input through this terminal.
11	$\overline{\text{CS}}$	Device Select	I	"L" level signal input through this terminal is transmitted to MB89251A via data bus to shift its internal register to "read" or "write" mode. This input signal is used together with $\overline{\text{W}}$ or $\overline{\text{R}}$ signal, which distinguishes between "read" and "write".

Pin No.	Symbol	Pin Name	I/O	Function
12	CMDT	Command Data	I	This terminal discriminates between sending/receiving signal and mode parameter, operation command and status information on data bus. When signal on data bus is sending/receiving signal, its level is "L" while level is "H" for some of the others on data bus. This signal is also used together with $\overline{W}$ or $\overline{R}$ signal.
13	R	Read Enable	I	For reading receiving data or status information via data bus, "L" level read enable pulse is input through this terminal.
14	RCVRDY	Reception Ready	O	In the state that serial receiving data is converted to parallel data to be read by MPU this terminal has "H" level, while level is reset to "L" when MPU reads the data. When RCVE bit of operation command is set to "0", RCVRDY signal is masked.
15	TRNRDY	Transmission Ready	O	Maskable signal to get MPU informed that sending data is transmittable to buffer register. When sending data is transferred from MPU, this is automatically reset by $\overline{W}$ signal. Bit 1 of status register indicates the state of sending data reception ready, while this terminal addingly indicates the state of sending data transmission ready.
16	SYNC BRK	Sync. Character Detection Break Code Detection	I O	This terminal is used for SYNC (synchronous character detection) signal in synchronous mode while it is used for BRK (break code detection) signal in start-stop mode. When used for SYNC signal in synchronous mode, input or output function is determined by mode parameter's sync. detection system. When internal sync. detection mode is set by mode parameter, this functions as output terminal. With reception of sync. character for 1 or 2 data, its level becomes "H", which will be reset as MPU reads status information. On the other hand, when external sync. detection mode is set by mode parameter, it functions as input terminal. When "H" level signal is input to this signal as $\overline{RCVCLK}$ terminal has "H" level input in enter hunt mode, data sampled at leading edge of $\overline{RCVCLK}$ signal is used as start data of receiving data. Duration of "H" level input is more than one cycle of $\overline{RCVCLK}$ input. In external sync. detection mode, detection of sync. code is not operated. When used for BRK signal in start-stop mode, this functions as output terminal, whose level becomes "H" with reception of "L" character (all start bit, data bit, parity bit and stop bit are "L") after framing error (stop bit is "L"). "H" level in the above condition will be cancelled when receiving data has "H" level or it is reset.
17	$\overline{CTS}$	Clear to Send	I	In the state that TRNEN bit of operation command is set to "1", transmission from TRNDT terminal is possible with "L" level signal output to this terminal. If this terminal has "H" level or TRNEN bit is set to "0" in transmission operation, all data stored previously are sent out and then transmission is stopped. If this undergoes in course of the first sync. character sending in sync. mode (duplex sync. character mode), the second sync. character is also sent out.

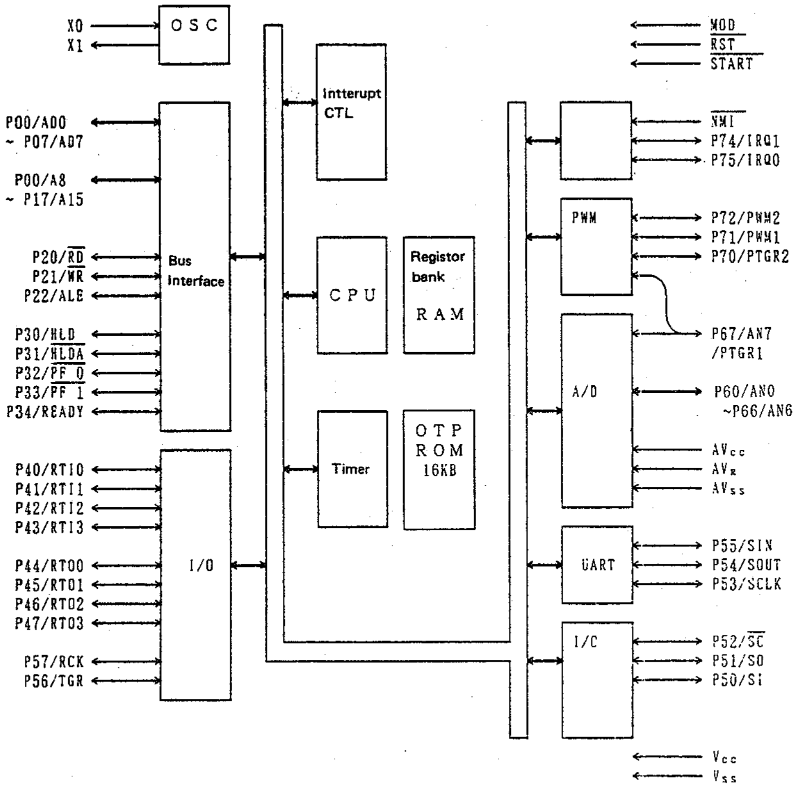
Pin No.	Symbol	Pin Name	I/O	Function
18	TRNEMP	Transmission Buffer Empty	O	This terminal outputs "L" level when there is no data to be transmitted, and it is reset with reception of 1 character of sending data. If this signal is "H" level in sync. mode, it indicates that automatically inserted sync. character is shifted out because of no transfer of sending data. This signal also applies to indication of line inversion timing for half-duplex operation.
19	TRNDT	Transmission Data	O	This terminal converts parallel data transferred from MPU to serial data while generating necessary bits for it such as start bit to be added, and outputs bit added data as sending data. After reset or when TRNEN bit is set to "0" or $\overline{\text{CTS}}$ input level is "H", this comes into marking state. When there is no data to be sent, it outputs sync. character in sync. mode or enters marking state in start-stop mode.
20	CLOCK	Clock	I	For input of timing reference clock signal for internal operation. Clock signal is independent from other external signals, however, in sync. mode and start-stop mode (×1) its frequency becomes more than ×30 as high as those of transmission clock and reception clock, while it is more than ×4.5 as high as them in other start-stop modes (×16 and ×64).
21	RST	Reset	I	For input of reset pulse signal to initialize MB89251A. When "H" level pulse whose pulse width is 6 tck or more is input, MB89251A is set to the mode parameter setting standby state that is the initlal mode. Even in a period of reset pulse input, CLOCK terminal requires clock input.
22	$\overline{\text{DSR}}$	Data Set Ready	I	Used for modem control with connection to modem's Data Set Ready signal. State of this terminal is indicated by bit 7 of status register.
23	$\overline{\text{RTS}}$	Send Request	O	Used for modem control with connection to modem's Request To Send signal. When bit 5 of operation command is set to "1" by programming, this outputs "L" level signal.
24	$\overline{\text{DTR}}$	Data Terminal Ready	O	Used for modem control with connection to modem's Data Terminal Ready signal or used as Rate Select signal for modem control. When bit 1 of operation command is set to "1" by programming, this outputs "L" level signal.
25	$\overline{\text{RCVCLK}}$	Receiving Clock	I	Transfer rate of receiving data is determined by this signal. In sync. mode frequency of this receiving clock is set to the same as baud rate of receiving data. In start-stop mode, frequency of receiving clock is set to ×1, ×16 or ×64 as high as baud rate of receiving data. Receiving data is sampled at leading edge of this receiving clock. In the ×1 start-stop mode, external synchronization between $\overline{\text{RCVCLK}}$ and RCVDT is required differently from other start-stop modes (×16 and ×64).
26	Vcc	Power Supply	—	+5 V power supply

Note: I/O : Input/Output
I : Input
O : Output

■ MB89T715APF 【FUJITSU】
(8-Bit Micro Computer)

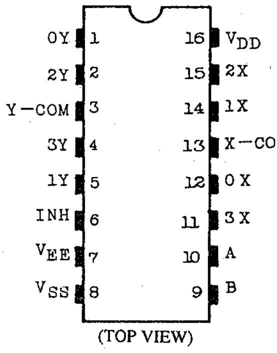


(TOP VIEW)
P74/IRQ1 1
NMI 2
P50/SI 3
P51/SO 4
P52/SC 5
P53/SCLK 6
P54/SOUT 7
P55/SIN 8
P56/TGR 9
P57/RCK 10
AVcc 11
AVR 12
AVss 13
P60/AN0 14
P61/AN1 15
P62/AN2 16
P63/AN3 17
P64/AN4 18
P65/AN5 19
20 P66/AN6
21 P67/AN7/RTGR1
22 START
23 MOD
24 X0
25 X1
26 Vss
27 RST
28 AD0/P00
29 AD1/P01
30 AD2/P02
31 AD3/P03
32 AD4/P04
33 AD5/P05
34 AD6/P06
35 AD7/P07
36 A08/P10
37 A09/P11
38 A10/P12
39 A11/P13
40 A12/P14
41 A13/P15
42 A14/P16
43 A15/P17
44 RD/P20
45 WR/P21
46 ALE/P22
47 HLD/P30
48 HLDA/P31
49 PF0/P32
50 PF1/P33
51 READY/P34
52 RT10/P40
53 RT11/P41
54 RT12/P42
55 RT13/P43
56 RT00/P44
57 RT01/P45
58 Vcc
59 P46/RT02
60 P47/RT03
61 P70/PTGR2
62 P71/PWM1
63 P72/PWM2
64 P73/IRQ0



X0
X1
OSC
P00/AD0 ~ P07/AD7
P00/A8 ~ P17/A15
P20/RD
P21/WR
P22/ALE
P30/HLD
P31/HLDA
P32/PF 0
P33/PF 1
P34/READY
Bus Interface
P40/RTI0
P41/RTI1
P42/RTI2
P43/RTI3
P44/RT00
P45/RT01
P46/RT02
P47/RT03
P57/RCK
P56/TGR
I/O
Intterupt CTL
CPU
Registor bank RAM
Timer
OTP ROM 16KB
MOD
RST
START
NMI
P74/IRQ1
P75/IRQ0
PWM
P72/PWM2
P71/PWM1
P70/PTGR2
P67/AN7 /PTGR1
A/D
P60/AN0 ~P66/AN6
AVcc
AVR
AVss
UART
P55/SIN
P54/SOUT
P53/SCLK
I/C
P52/SC
P51/SO
P50/SI
Vcc
Vss

MC14052BF 【MOTOROLA】
(Dual 4 Channel Analog Multiplexers/ Demultiplexers)

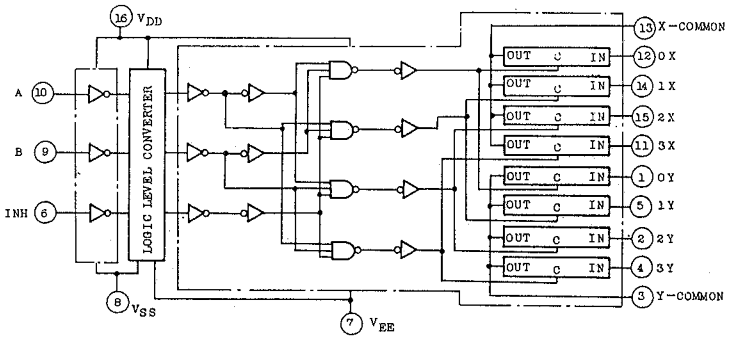

0Y 1
2Y 2
Y−COM 3
3Y 4
1Y 5
INH 6
V_{EE} 7
V_{SS} 8
16 V_{DD}
15 2X
14 1X
13 X−COM
12 0X
11 3X
10 A
9 B
(TOP VIEW)

TRUTH TABLE

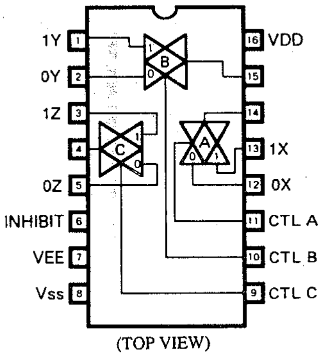
CONTROL INPUTS			"ON" CHANNEL
INHIBIT	B	A	TC4052BP TC4052BF
L	L	L	0X、0Y
L	L	H	1X、1Y
L	H	L	2X、2Y
L	H	H	3X、3Y
L	L	L	−
L	L	H	−
L	H	L	−
L	H	H	−
H	※	※	NONE

※ Don' t Care

LOGIC DIAGRAM


16 V_{DD}
A 10
B 9
INH 6
LOGIC LEVEL CONVERTER
8 V_{SS}
7 V_{EE}
OUT C IN
13 X−COMMON
12 0X
14 1X
15 2X
11 3X
1 0Y
5 1Y
2 2Y
4 3Y
3 Y−COMMON

MC14053BF 【MOTOROLA】
(Triple 2 Channel Analog Multiplexers/ Demultiplexers)

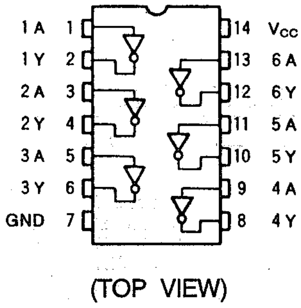

1Y 1
0Y 2
1Z 3
4
0Z 5
INHIBIT 6
VEE 7
Vss 8
16 VDD
15
14
13 1X
12 0X
11 CTL A
10 CTL B
9 CTL C
B
C
A
1
0
(TOP VIEW)

TRUTH TABLE

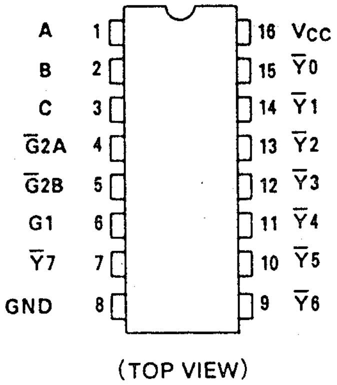
CONTROL INPUTS				"ON" CHANNEL
INHIBIT	C	B	A	4053BP 4053BF
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y,0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	*	*	*	NOTE

* Don't Care,

MC74HC04AF 【MOTOROLA】
(Hex Inverters)


1A 1
1Y 2
2A 3
2Y 4
3A 5
3Y 6
GND 7
14 Vcc
13 6A
12 6Y
11 5A
10 5Y
9 4A
8 4Y
(TOP VIEW)

MC74HC138AF 【MOTOROLA】
(3-Line to 8-Line Decoders/ Demultiplexers)

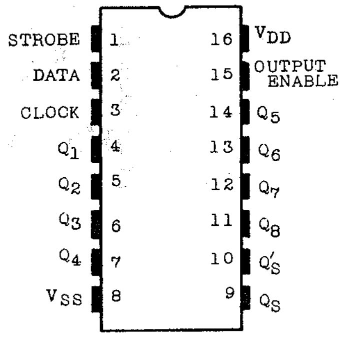

A 1
B 2
C 3
$\overline{G}2A$ 4
$\overline{G}2B$ 5
G1 6
$\overline{Y}7$ 7
GND 8
16 Vcc
15 $\overline{Y}0$
14 $\overline{Y}1$
13 $\overline{Y}2$
12 $\overline{Y}3$
11 $\overline{Y}4$
10 $\overline{Y}5$
9 $\overline{Y}6$
(TOP VIEW)

TRUE Table

INPUTS.						OUTPUTS								SELECTED OUTPUT
ENABLE			SELECT											
G1	$\overline{G}2A$	$\overline{G}2B$	C	B	A	$\overline{Y}0$	$\overline{Y}1$	$\overline{Y}2$	$\overline{Y}3$	$\overline{Y}4$	$\overline{Y}5$	$\overline{Y}6$	$\overline{Y}7$	
L	X	X	X	X	X	H	H	H	H	H	H	H	H	NONE
X	H	X	X	X	X	H	H	H	H	H	H	H	H	NONE
X	X	H	X	X	X	H	H	H	H	H	H	H	H	NONE
H	L	L	L	L	L	L	H	H	H	H	H	H	H	$\overline{Y}0$
H	L	L	L	L	H	H	L	H	H	H	H	H	H	$\overline{Y}1$
H	L	L	L	H	L	H	H	L	H	H	H	H	H	$\overline{Y}2$
H	L	L	L	H	H	H	H	H	L	H	H	H	H	$\overline{Y}3$
H	L	L	H	L	L	H	H	H	H	L	H	H	H	$\overline{Y}4$
H	L	L	H	L	H	H	H	H	H	H	L	H	H	$\overline{Y}5$
H	L	L	H	H	L	H	H	H	H	H	H	L	H	$\overline{Y}6$
H	L	L	H	H	H	H	H	H	H	H	H	H	L	$\overline{Y}7$

X : DONT' CARE

■ MC14094BF 【MOTOROLA】
(8 Stage Bus Compatible Shift/Store Register)



STROBE 1
DATA 2
CLOCK 3
Q_1 4
Q_2 5
Q_3 6
Q_4 7
V_{SS} 8
16 V_{DD}
15 OUTPUT ENABLE
14 Q_5
13 Q_6
12 Q_7
11 Q_8
10 Q'_S
9 Q_S

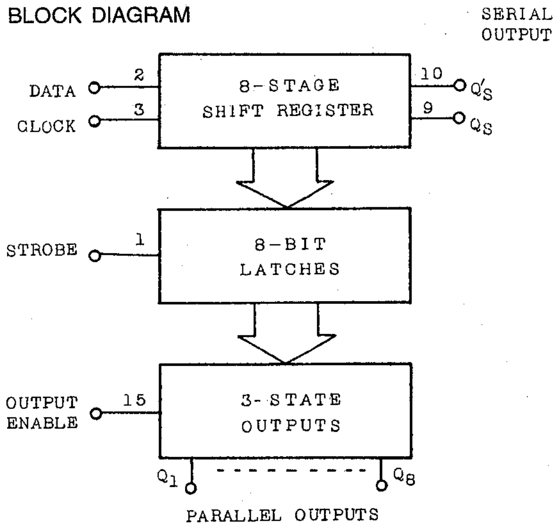
(TOP VIEW)

TRUTH TABLE

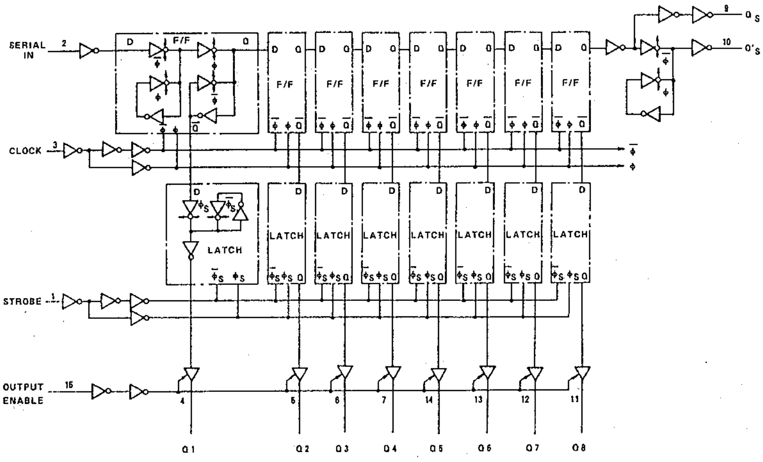
CL	OE	ST	D	PO		SO	
				Q_1	Q_n	Q_S	Q'_S
↑	H	H	L	L	Q_{n-1}	Q_7	NC
↑	H	H	H	H	Q_{n-1}	Q_7	NC
↑	H	L	*	NC	NC	Q_7	NC
↑	L	*	*	HZ	HZ	Q_7	NC
↓	H	*	*	NC	NC	NC	Q_S
↓	L	*	*	HZ	HZ	NC	Q_S

CL = Clock
OE = Output Enable
ST = Strobe
D = Data
PO = Parallel Outputs
SO = Serial Output
* = Don't care
NC = No Change
HZ = High Impedance

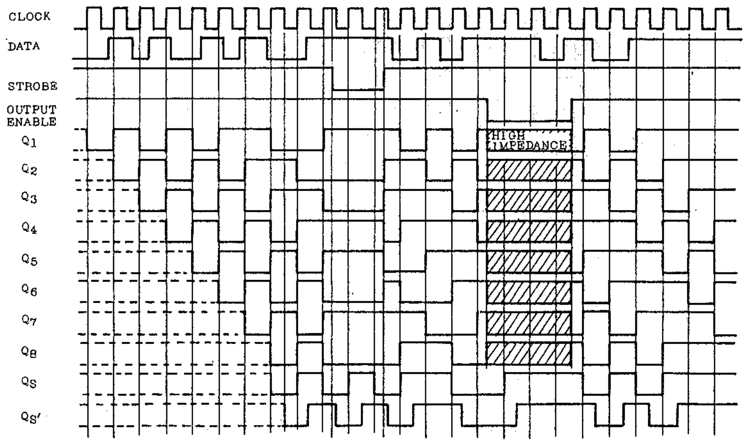
BLOCK DIAGRAM



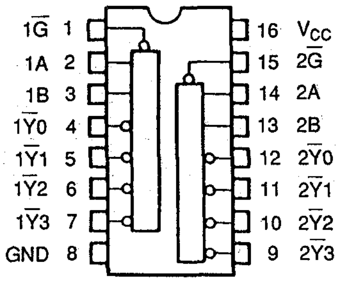
SERIAL OUTPUT
DATA 2
CLOCK 3
8-STAGE SHIFT REGISTER
10 Q'_S
9 Q_S
STROBE 1
8-BIT LATCHES
OUTPUT ENABLE 15
3-STATE OUTPUTS
Q_1
Q_8
PARALLEL OUTPUTS



SERIAL IN 2
CLOCK 3
STROBE 1
OUTPUT ENABLE 15
D
Q
F/F
LATCH
9 Q_S
10 Q'_S
4
5
6
7
14
13
12
11
Q1
Q2
Q3
Q4
Q5
Q6
Q7
Q8



■ MC74HC139AF 【MOTOROLA】
(Dual 2-Line to 4-Lile Decoders/ Demultiplexers)


$\overline{1G}$ 1
1A 2
1B 3
$1\overline{Y0}$ 4
$1\overline{Y1}$ 5
$1\overline{Y2}$ 6
$1\overline{Y3}$ 7
GND 8
16 V_{CC}
15 $\overline{2G}$
14 2A
13 2B
12 $2\overline{Y0}$
11 $2\overline{Y1}$
10 $2\overline{Y2}$
9 $2\overline{Y3}$

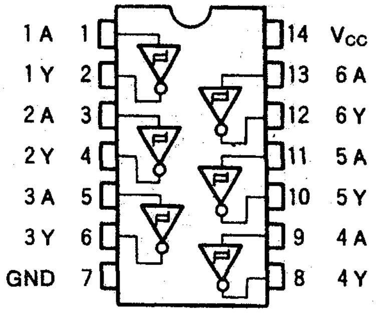
(TOP VIEW)

TRUE Table

INPUTS			OUTPUTS				SELECTED OUTPUT
ENABLE	SELECT		$\overline{Y0}$	$\overline{Y1}$	$\overline{Y2}$	$\overline{Y3}$	
$\overline{G}$	B	A					
H	X	X	H	H	H	H	NONE
L	L	L	L	H	H	H	$\overline{Y0}$
L	L	H	H	L	H	H	$\overline{Y1}$
L	H	L	H	H	L	H	$\overline{Y2}$
L	H	H	H	H	H	L	$\overline{Y3}$

X : Don't care

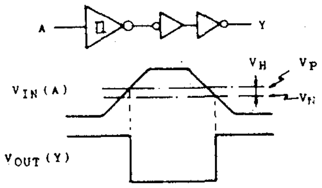
■ MC74HC14AF 【MOTOROLA】
(Hex Schmitt-Trigger Inverters)


1A 1
1Y 2
2A 3
2Y 4
3A 5
3Y 6
GND 7
14 V_{CC}
13 6A
12 6Y
11 5A
10 5Y
9 4A
8 4Y

(TOP VIEW)

TRUE Table

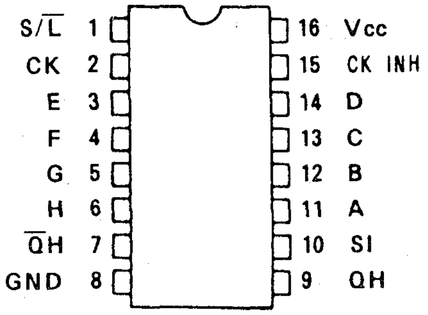
A	Y
L	H
H	L


A
Y
$V_{IN(A)}$
V_H
V_P
V_N
$V_{OUT(Y)}$

Vcc=4.5 V V_P=2.7 V typ.
V_N=1.6 V typ.

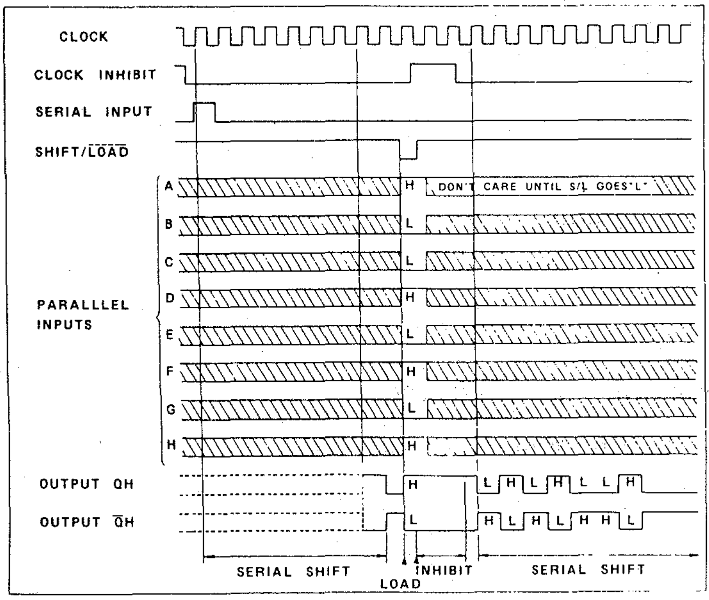
■ MC74HC14AFL 【MOTOROLA】
(Refer to MC74HC14AF.)

■ MC74HC165F 【MOTOROLA】
(8-Bit Serial or Parallel-In/Serial Out Shift Registers With Complementary Out)

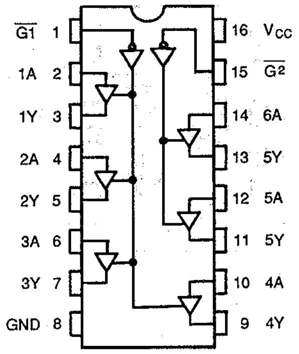

S/$\overline{L}$ 1
CK 2
E 3
F 4
G 5
H 6
$\overline{QH}$ 7
GND 8
16 Vcc
15 CK INH
14 D
13 C
12 B
11 A
10 SI
9 QH

(TOP VIEW)

Timing chart


CLOCK
CLOCK INHIBIT
SERIAL INPUT
SHIFT/$\overline{LOAD}$
PARALLLEL INPUTS
A
B
C
D
E
F
G
H
H
L
L
H
L
H
L
H
DON'T CARE UNTIL S/$\overline{L}$ GOES"L"
OUTPUT QH
OUTPUT $\overline{QH}$
H
L
L H L H L L H
H L H L H H L
SERIAL SHIFT
LOAD
INHIBIT
SERIAL SHIFT

■ MC74HC367F 【MOTOROLA】 (Hex Bus Drivers With 3-State NON-Inverted Output)


$\overline{G1}$ 1
1A 2
1Y 3
2A 4
2Y 5
3A 6
3Y 7
GND 8
16 Vcc
15 $\overline{G2}$
14 6A
13 5Y
12 5A
11 5Y
10 4A
9 4Y

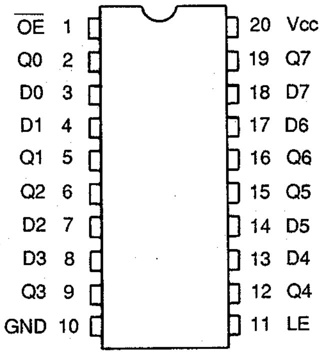
(Top View)

TRUE Table

INPUTS		OUTPUTS	
$\overline{G}$	An	Y(367A)	$\overline{Y}$(368A)
L	L	L	H
L	H	H	L
H	X	Z	Z

X:DON'T CARE Z:HIGH IMPEDANCE

■ MC74HC373AF 【MOTOROLA】 (Octal D-Type Latch With NON-Inverted 3-State Output)

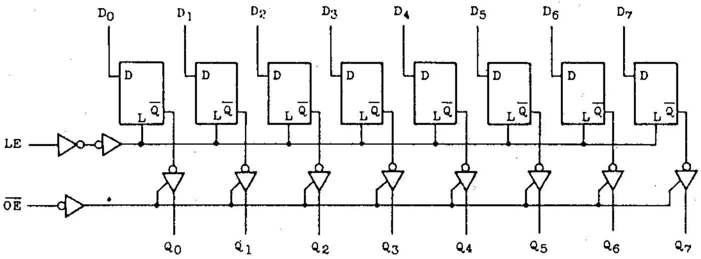

$\overline{OE}$ 1
Q0 2
D0 3
D1 4
Q1 5
Q2 6
D2 7
D3 8
Q3 9
GND 10
20 Vcc
19 Q7
18 D7
17 D6
16 Q6
15 Q5
14 D5
13 D4
12 Q4
11 LE

(Top View)

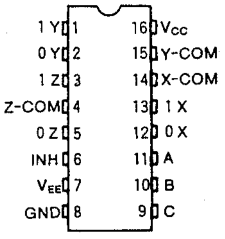
TRUE Table

INPUTS			OUTPUTS
$\overline{OE}$	LE	D	
H	X	X	Z
L	L	X	Q_n
L	H	L	L
L	H	H	H

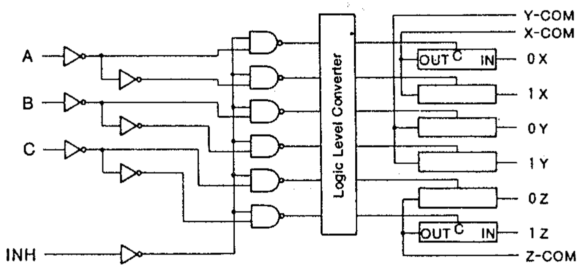
X : Don't Care
Z : Hi impedance
Qn : Q output level before the LE become "L".


D0
D1
D2
D3
D4
D5
D6
D7
D
L Q
LE
$\overline{OE}$
Q0
Q1
Q2
Q3
Q4
Q5
Q6
Q7

■ MC74HC4053F 【MOTOROLA】 (Triple 2-Channel Analog Multiplexer/ Demultiplexer)


1 Y 1
0 Y 2
1 Z 3
Z-COM 4
0 Z 5
INH 6
VEE 7
GND 8
16 Vcc
15 Y-COM
14 X-COM
13 1 X
12 0 X
11 A
10 B
9 C

(TOP VIEW)

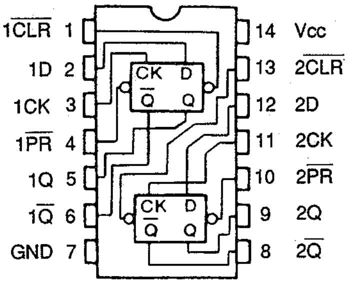

A
B
C
INH
Logic Level Converter
OUT C IN
Y-COM
X-COM
0 X
1 X
0 Y
1 Y
0 Z
1 Z
Z-COM

TRUE Table

CONTROL INPUTS				"ON" CHANNEL
INHIBIT	C＊	B	A	HC4053A
L	L	L	L	0X, 0Y, 0Z
L	L	L	H	1X, 0Y, 0Z
L	L	H	L	0X, 1Y, 0Z
L	L	H	H	1X, 1Y, 0Z
L	H	L	L	0X, 0Y, 1Z
L	H	L	H	1X, 0Y, 1Z
L	H	H	L	0X, 1Y, 1Z
L	H	H	H	1X, 1Y, 1Z
H	X	X	X	NONE

X : DON'T CARE

■ MC74HC74AF 【MOTOROLA】 (Dual D-Type Positive-EDGE-Triggered Flip-Flops With Preset AND Clear)


1$\overline{CLR}$ 1
1D 2
1CK 3
1$\overline{PR}$ 4
1Q 5
1$\overline{Q}$ 6
GND 7
14 Vcc
13 2$\overline{CLR}$
12 2D
11 2CK
10 2$\overline{PR}$
9 2Q
8 2$\overline{Q}$
CK D
$\overline{Q}$ Q

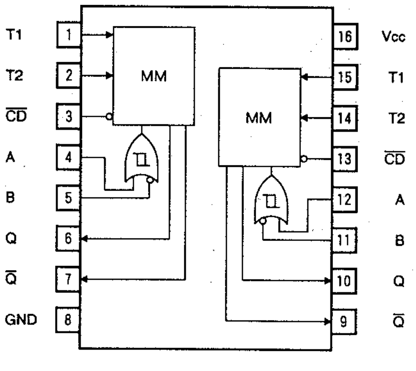
(Top View)

TRUE Table

INPUTS				OUTPUTS		FUNCTION
$\overline{CLR}$	$\overline{PR}$	D	CK	Q	$\overline{Q}$	
L	H	X	X	L	H	CLEAR
H	L	X	X	H	L	PRESET
L	L	X	X	H	H	—
H	H	L	↑	L	H	—
H	H	H	↑	H	L	—
H	H	X	↓	Q_n	$\overline{Q}_n$	NO CHANGE

X : Don't care

■ MC74HC4538AF 【MOTOROLA】 (Dual Retriggerable Monostable Multivibrator)

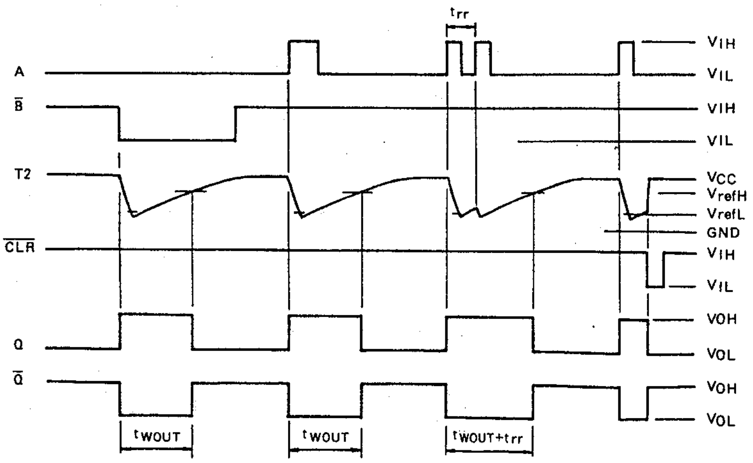

T1
T2
$\overline{CD}$
A
B
Q
$\overline{Q}$
GND
1
2
3
4
5
6
7
8
MM
MM
16
15
14
13
12
11
10
9
Vcc
T1
T2
$\overline{CD}$
A
B
Q
$\overline{Q}$

TOP VIEW

TRUE Table

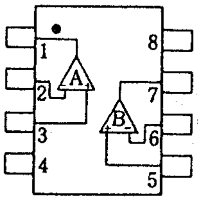
INPUT			OUTPUT		NOTE
A	$\overline{B}$	$\overline{CD}$	Q	$\overline{Q}$	
↑	H	H	⊓	⊔	OUTPUT ENABLE
X	L	H	L	H	INHIBIT
H	X	H	L	H	INHIBIT
L	↓	H	⊓	⊔	OUTPUT ENABLE
X	X	L	L	H	INHIBIT

X:Don't Care

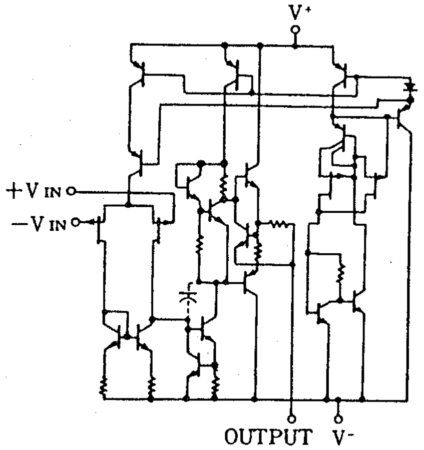

trr
A
$\overline{B}$
T2
$\overline{CLR}$
Q
$\overline{Q}$
VIH
VIL
VIH
VIL
Vcc
VrefH
VrefL
GND
VIH
VIL
VOH
VOL
VOH
VOL
tWOUT
tWOUT
tWOUT+trr

■ NJM062M 【JRC】 (J-FET Input Op.Amp)

(Top View)

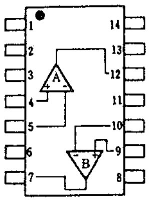

1
2
3
4
5
6
7
8
A
B

1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺

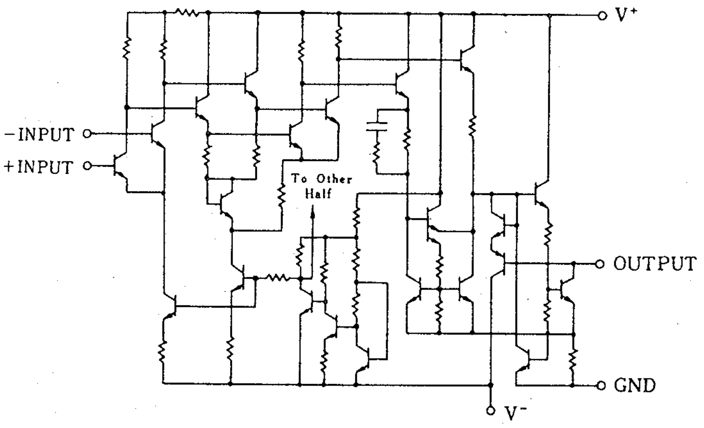

V⁺
+V IN
−V IN
OUTPUT
V⁻

■ NJM319M 【JRC】 (Voltage Comparator)

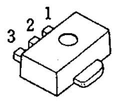
(Top View)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
A
B

1. NC
2. NC
3. A GND
4. A+INPUT
5. A−INPUT
6. V⁻
7. B OUTPUT
8. B GND
9. B+INPUT
10. B−INPUT
11. V⁺
12. A OUTPUT
13. NC
14. NC

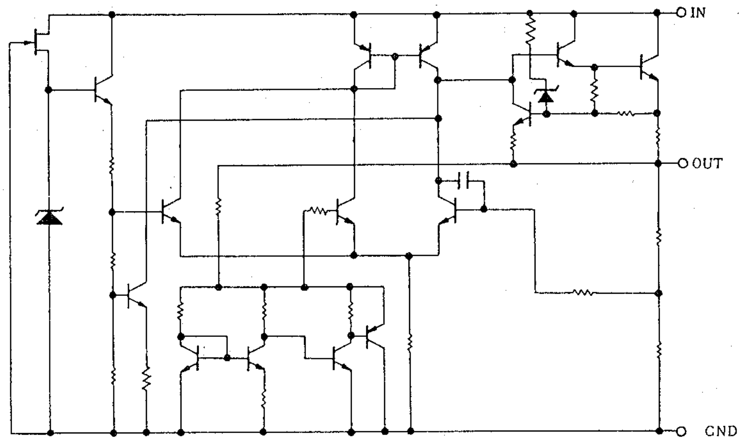

V⁺
−INPUT
+INPUT
To Other Half
OUTPUT
GND
V⁻

■ NJM78L15UA 【JRC】
(3-Terminal Positive Voltage Regulator (+15V))



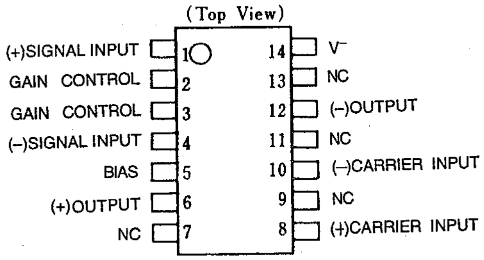
NJM78L00UA

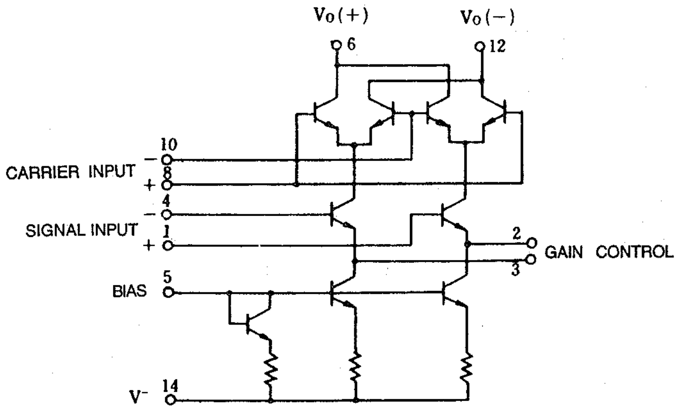
1. OUT
2. GND
3. IN



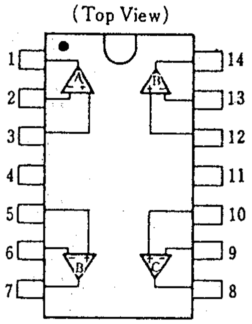
■ RC062M 【RAYTHEON】
(Refer to NJM062M.)

■ RC1496M 【RAYTHEON】
(Balanced Modulator)

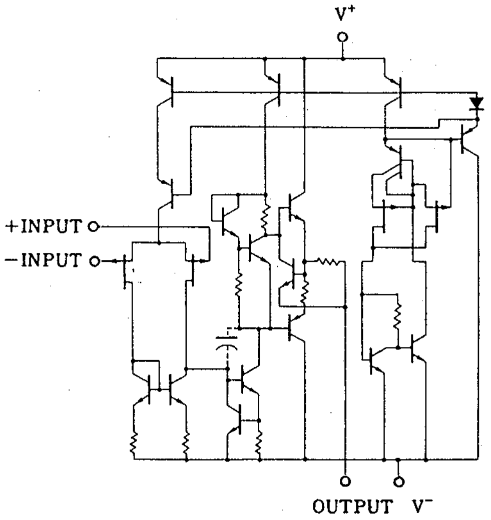

(Top View)
(+)SIGNAL INPUT
GAIN CONTROL
GAIN CONTROL
(-)SIGNAL INPUT
BIAS
(+)OUTPUT
NC
1
2
3
4
5
6
7
14
13
12
11
10
9
8
V⁻
NC
(-)OUTPUT
NC
(-)CARRIER INPUT
NC
(+)CARRIER INPUT


Vo(+)
6
Vo(-)
12
10
CARRIER INPUT
-
+
8
4
SIGNAL INPUT
-
1
+
2
GAIN CONTROL
3
5
BIAS
14
V⁻

■ RC064M 【RAYTHEON】
(J-FET Input Op.Amplifier)

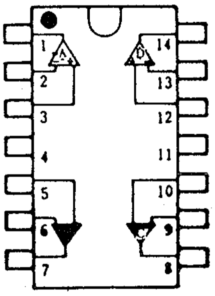

(Top View)
1
2
3
4
5
6
7
14
13
12
11
10
9
8
A
B
B
C

1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁺
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. C OUTPUT
9. C−INPUT
10. C+INPUT
11. V⁻
12. D+INPUT
13. D−INPUT
14. D OUTPUT


V⁺
+INPUT
−INPUT
OUTPUT
V⁻

■ RC2902M 【RAYTHEON】
(Quad Single Supply Op.Amplifier)

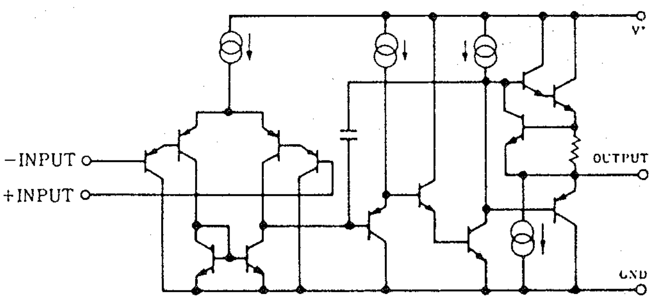
N, M V Type
(Top View)


1
2
3
4
5
6
7
14
13
12
11
10
9
8
A
D
B
C

Pin Assignment

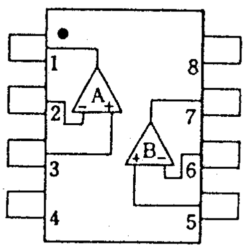
1 .A OUTPUT
2 .A−INPUT
3 .A+INPUT
4 .V⁺
5 .B+INPUT
6 .B−INPUT
7 .B OUTPUT
8 .C OUTPUT
9 .C−INPUT
10.C+INPUT
11.GROUND
12.D+INPUT
13.D−INPUT
14.D OUTPUT

■ **Equivalent Circuit (4 circuits in a chip)**

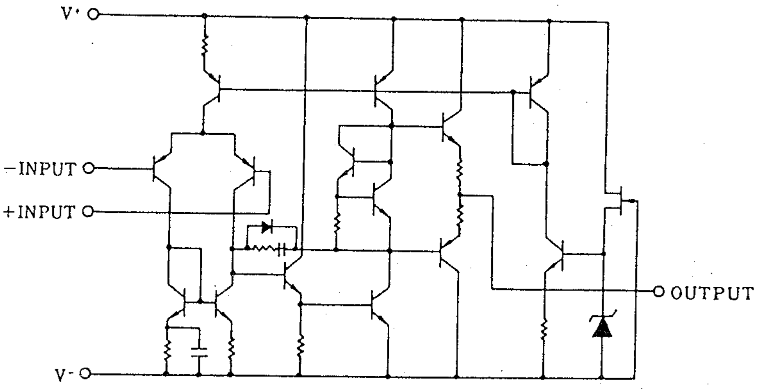

V⁺
−INPUT
+INPUT
OUTPUT
GND

RC2068MD 【RAYTHEON】
(Dual Low-Noise Op.Amplifier)

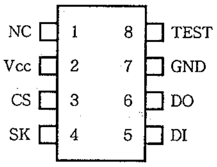
(Top View)


1
2
3
4
5
6
7
8
A
B

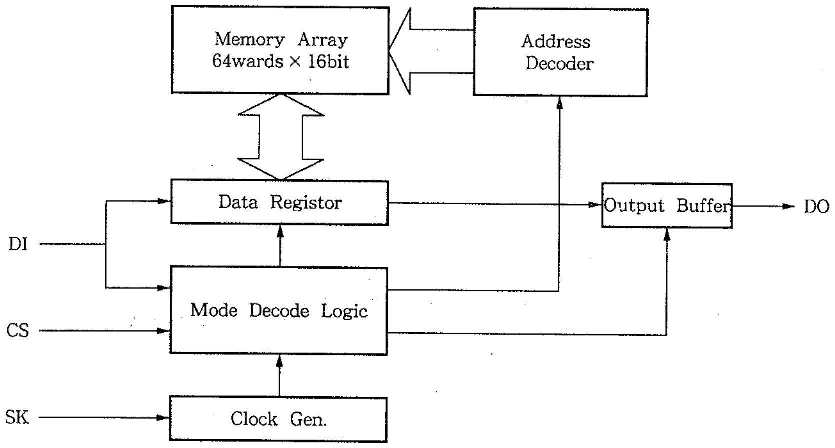
1. A OUTPUT
2. A−INPUT
3. A+INPUT
4. V⁻
5. B+INPUT
6. B−INPUT
7. B OUTPUT
8. V⁺


V⁺
−INPUT
+INPUT
OUTPUT
V⁻

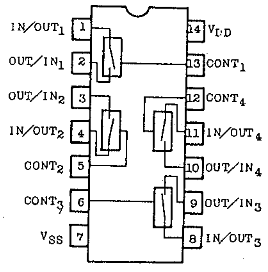
S-2914AIF10 【SEIKO】
(1K-Bit Serial EE PROM)


NC
Vcc
CS
SK
1
2
3
4
8
7
6
5
TEST
GND
DO
DI

PIN No.	SIGNAL	PIN No.	SIGNAL
1	No Connect	5	Serial Data Input
2	Vcc (+5V)	6	Serial Data Output
3	Chip Select	7	GND (0V)
4	Serial Clock	8	No Connect


Memory Array
64wards × 16bit
Address
Decoder
Data Registor
Output Buffer
DO
DI
Mode Decode Logic
CS
SK
Clock Gen.

TC4066BF 【TOSHIBA】
(Quad Bilateral Switch)

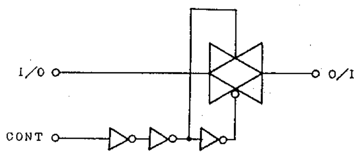

IN/OUT₁
OUT/IN₁
OUT/IN₂
IN/OUT₂
CONT₂
CONT₃
VSS
1
2
3
4
5
6
7
14
13
12
11
10
9
8
VDD
CONT₁
CONT₄
IN/OUT₄
OUT/IN₄
OUT/IN₃
IN/OUT₃

(TOP VIEW)

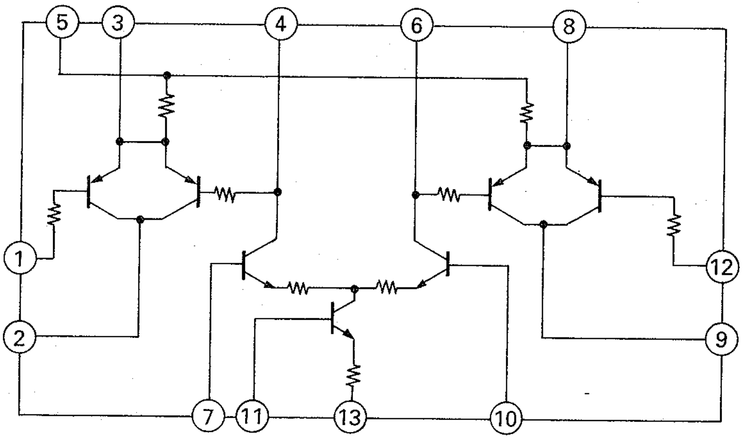
TRUTH TABLE

CONTROL	Impedance Between IN/OUT-OUT/IN ※
H	$0.5\sim5\times10^{2}\Omega$
L	$>10^{9}\Omega$

LOGIC DIAGRAM

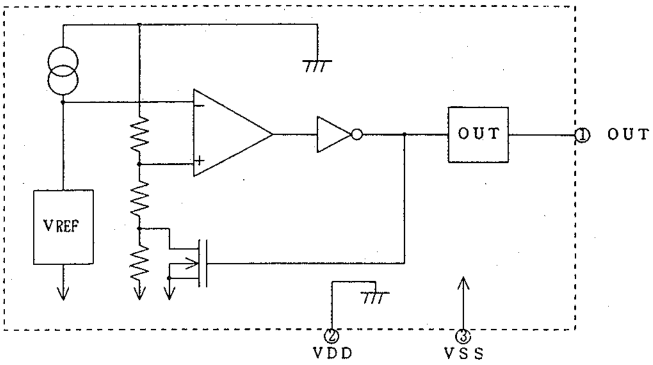


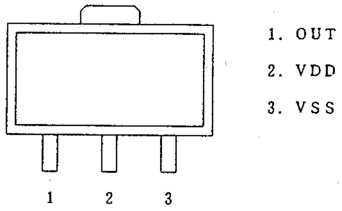
SCV1360-001 【JVC】
(Blanced Modulator)


5
3
4
6
8
1
12
2
9
7
11
13
10

S-8054HNCB 【SEIKO INSTRUMENTS】

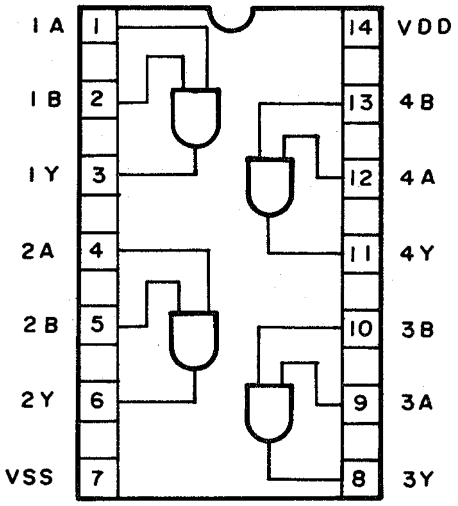
(C-MOS Voltage Detector)


VREF
OUT
① OUT
② VDD
③ VSS


1. OUT
2. VDD
3. VSS
1
2
3

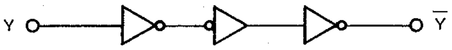
TC40H008F 【TOSHIBA】

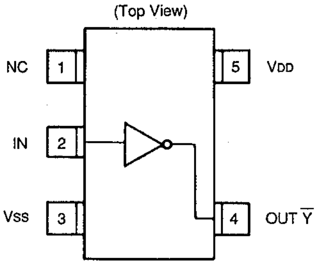
(Quad 2-Input AND Gate)


1A 1
1B 2
1Y 3
2A 4
2B 5
2Y 6
VSS 7
8 3Y
9 3A
10 3B
11 4Y
12 4A
13 4B
14 VDD

TC4S69F 【TOSHIBA】

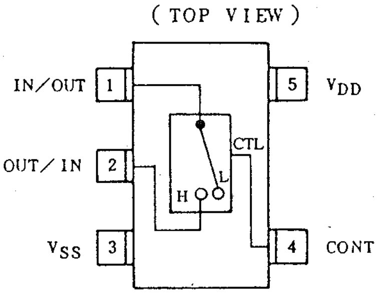
(Inverter Gate)

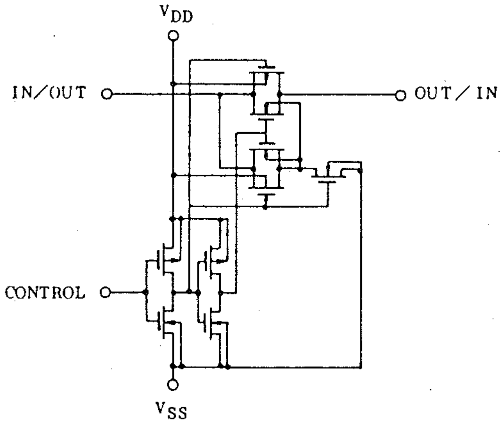

Y
$\overline{Y}$


(Top View)
NC 1
IN 2
Vss 3
5 VDD
4 OUT $\overline{Y}$

TC4S66F 【TOSHIBA】

(Bilateral Switch)


(TOP VIEW)
IN／OUT 1
OUT／IN 2
VSS 3
5 VDD
4 CONT
CTL
H
L

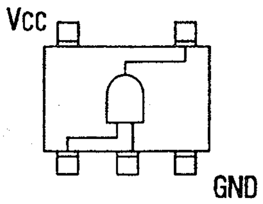

VDD
IN／OUT
OUT／IN
CONTROL
VSS

CONTROL	IMPEDANCE BETWEEN IN／OUT - OUT／IN *
H	$0.5 \sim 5 \times 10^2\ \Omega$
L	$> 10^9\ \Omega$

※ See Electrical Characteristics

TC7S08F 【TOSHIBA】

(2 Input Single AND Gate)

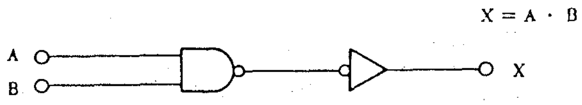


TRUE Table

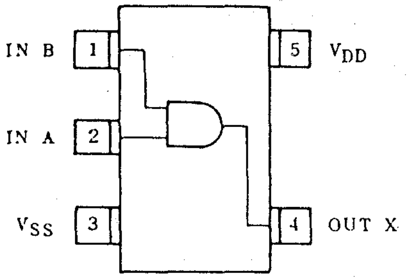
A	B	X
L	L	L
L	H	L
H	L	L
H	H	H

■ TC4S81F 【TOSHIBA】

(2-Input AND Gate)

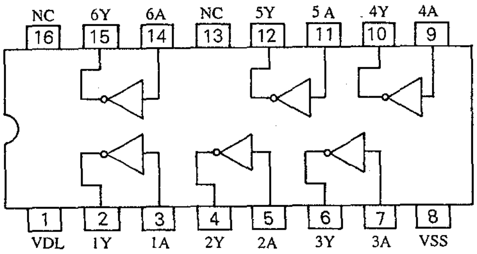


(TOP VIEW)


IN B
1
IN A
2
VSS
3
5
VDD
4
OUT X

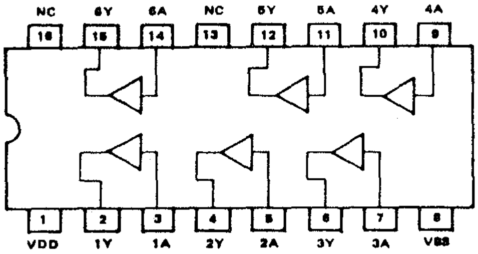
■ TC50H000F 【TOSHIBA】

(Hex Buffer (TC4049 Type))


NC
6Y
6A
NC
5Y
5A
4Y
4A
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8
VDL
1Y
1A
2Y
2A
3Y
3A
VSS

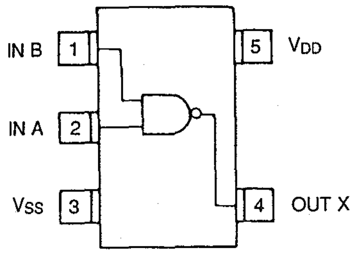
■ TC50H001F 【TOSHIBA】

(Hex Buffer (TC4050 Type))


NC
6Y
6A
NC
5Y
5A
4Y
4A
16
15
14
13
12
11
10
9
1
2
3
4
5
6
7
8
VDD
1Y
1A
2Y
2A
3Y
3A
VSS

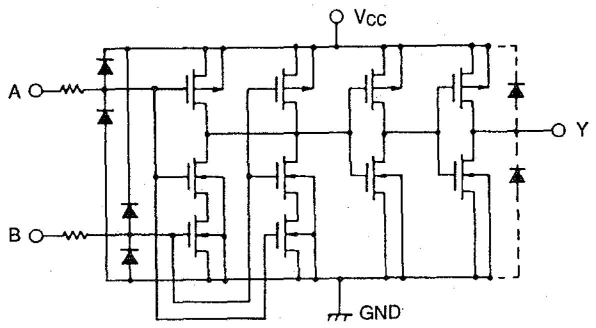
■ TC7S00F 【TOSHIBA】

(2-Input NAND Gate)


IN B
1
IN A
2
VSS
3
5
VDD
4
OUT X

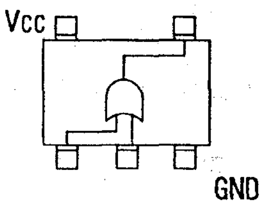
TRUE Table

A	B	X
L	L	H
L	H	H
H	L	H
H	H	L



■ TC7S32F 【TOSHIBA】

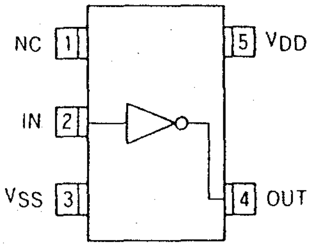
(2 Input Single OR Gate)



■ TC7SU04F 【TOSHIBA】

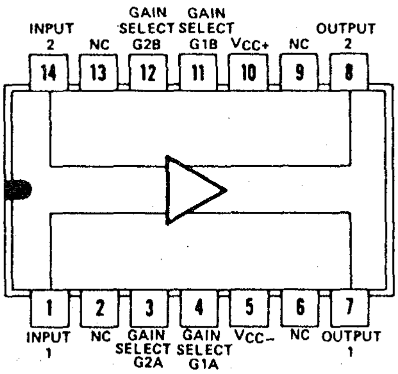
(Invertor)

Pin arangement


NC
1
IN
2
VSS
3
5
VDD
4
OUT

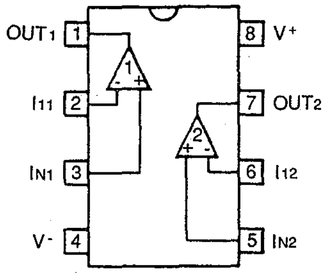
■ UA733CNS 【TEXAS】

(Differential Video Amplifier)

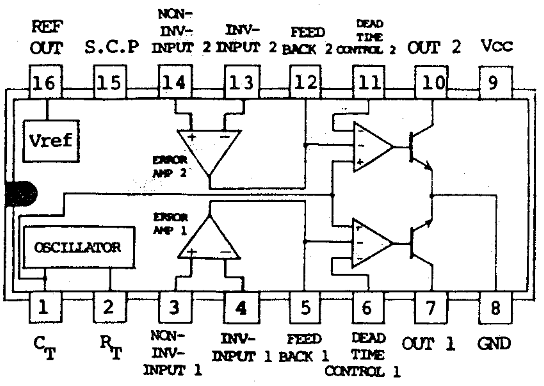

INPUT 2
NC
GAIN SELECT G2B
GAIN SELECT G1B
VCC+
NC
OUTPUT 2
14
13
12
11
10
9
8
1
2
3
4
5
6
7
INPUT 1
NC
GAIN SELECT G2A
GAIN SELECT G1A
VCC-
NC
OUTPUT 1

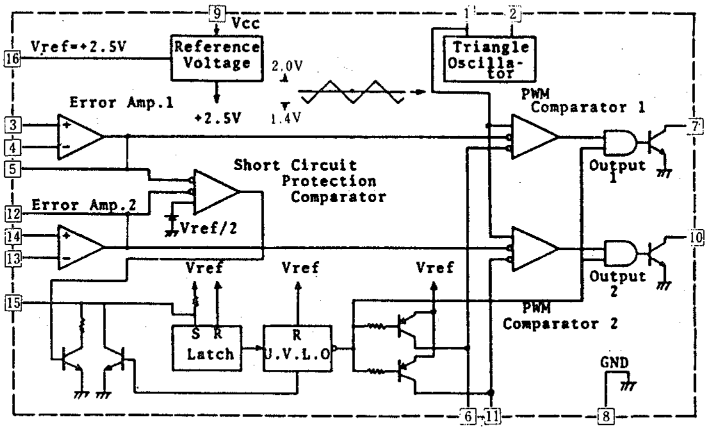
■ UPC812G2 【NEC】

(Op.Amp.)

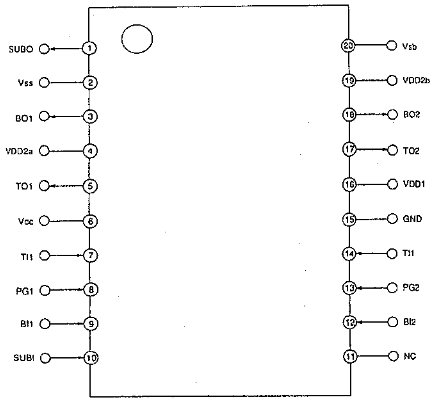

OUT1
1
I11
2
IN1
3
V-
4
8
V+
7
OUT2
6
I12
5
IN2
1
2
-
+
+
-

■ TL1451CNS 【TEXAS】
(Dual Switching Regulator Controller)

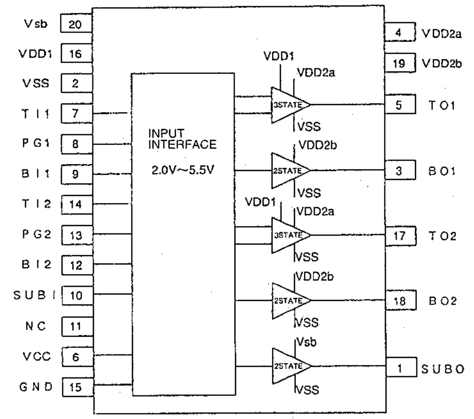

REF OUT
S.C.P
NON-INV-INPUT 2
INV-INPUT 2
FEED BACK 2
DEAD TIME CONTROL 2
OUT 2
Vcc
16
15
14
13
12
11
10
9
Vref
ERROR AMP 2
ERROR AMP 1
OSCILLATOR
1
2
3
4
5
6
7
8
C_T
R_T
NON-INV-INPUT 1
INV-INPUT 1
FEED BACK 1
DEAD TIME CONTROL 1
OUT 1
GND


9
Vcc
1
2
16
Vref=+2.5V
Reference Voltage
2.0V
Triangle Oscillator
Error Amp.1
+2.5V
1.4V
PWM Comparator 1
3
4
5
7
Short Circuit Protection Comparator
Output 1
12
Error Amp.2
Vref/2
14
13
10
Vref
Vref
Vref
Output 2
15
S R Latch
R U.V.L.O
PWM Comparator 2
GND
6
11
8

■ UPD16510GR 【NEC】
(Level Shifter)


SUBO
Vss
BO1
VDD2a
TO1
Vcc
TI1
PG1
BI1
SUBI
1
2
3
4
5
6
7
8
9
10
20
19
18
17
16
15
14
13
12
11
Vsb
VDD2b
BO2
TO2
VDD1
GND
TI1
PG2
BI2
NC

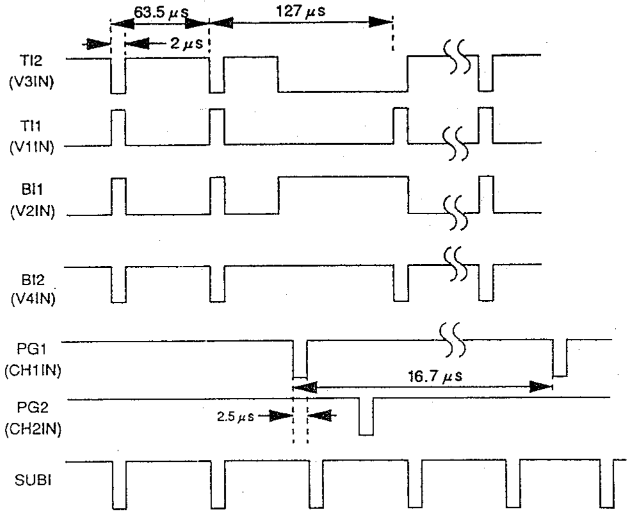
TOP VIEW


Vsb 20
VDD1 16
VSS 2
TI1 7
PG1 8
BI1 9
TI2 14
PG2 13
BI2 12
SUBI 10
NC 11
VCC 6
GND 15
INPUT INTERFACE
2.0V~5.5V
VDD1
VDD2a
3STATE
VSS
VDD2b
2STATE
VSS
VDD1
VDD2a
3STATE
VSS
VDD2b
2STATE
VSS
Vsb
2STATE
VSS
4 VDD2a
19 VDD2b
5 TO1
3 BO1
17 TO2
18 BO2
1 SUBO

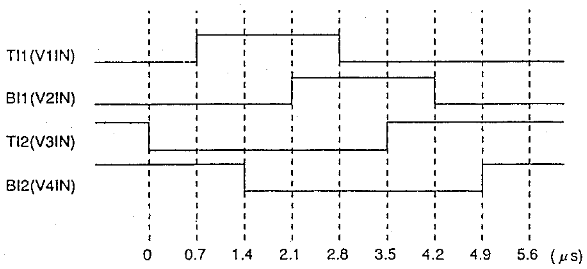
INPUT				OUTPUT		
TI1,2	PG	BI1,2	SUBI	TO1,2	BO1,2	SUBO
L	H	–	–	VHa	–	–
H	H	–	–	VL	–	–
L	L	–	–	VH	–	–
H	L	–	–	VL	–	–
–	–	L	–	–	VHb	–
–	–	H	–	–	VL	–
–	–	–	L			VL
–	–	–	H			VHH

(VL=VSS、VHa=VDD2a、VHb=VDD2b、VH=VDD1、VHH=Vsb)

INPUT PULSE TIMING CHART



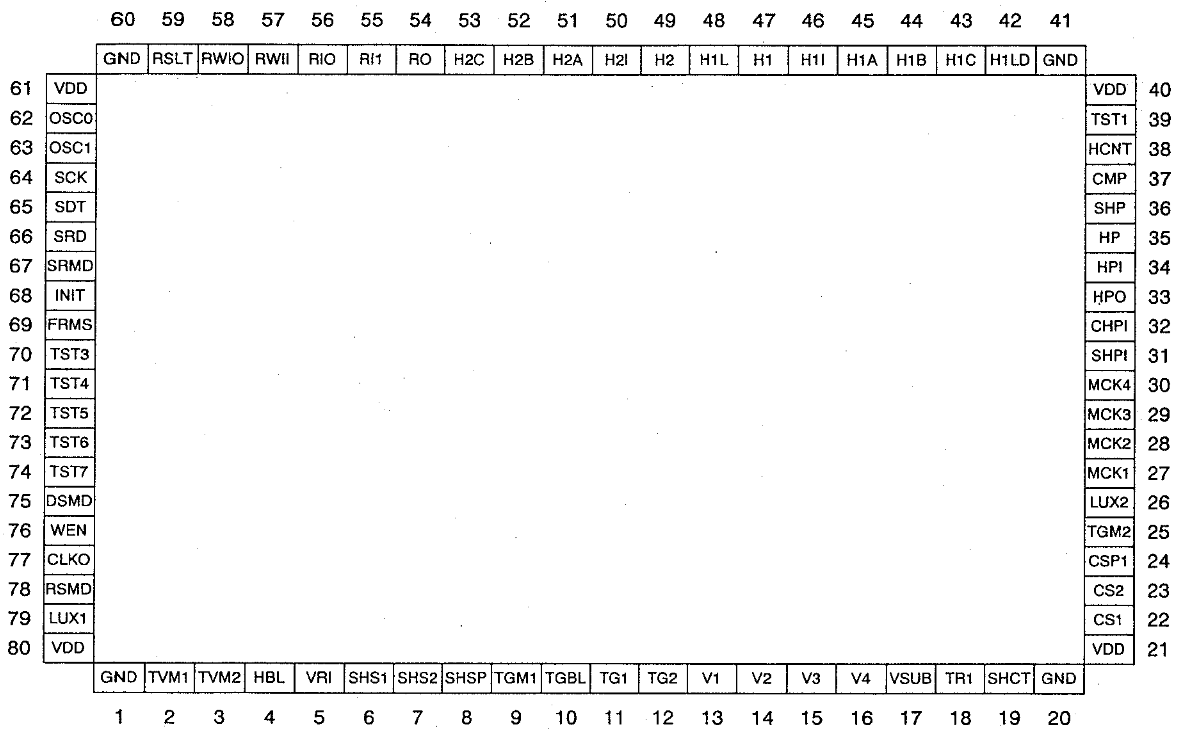
OVERLAP EXPANSION CHART



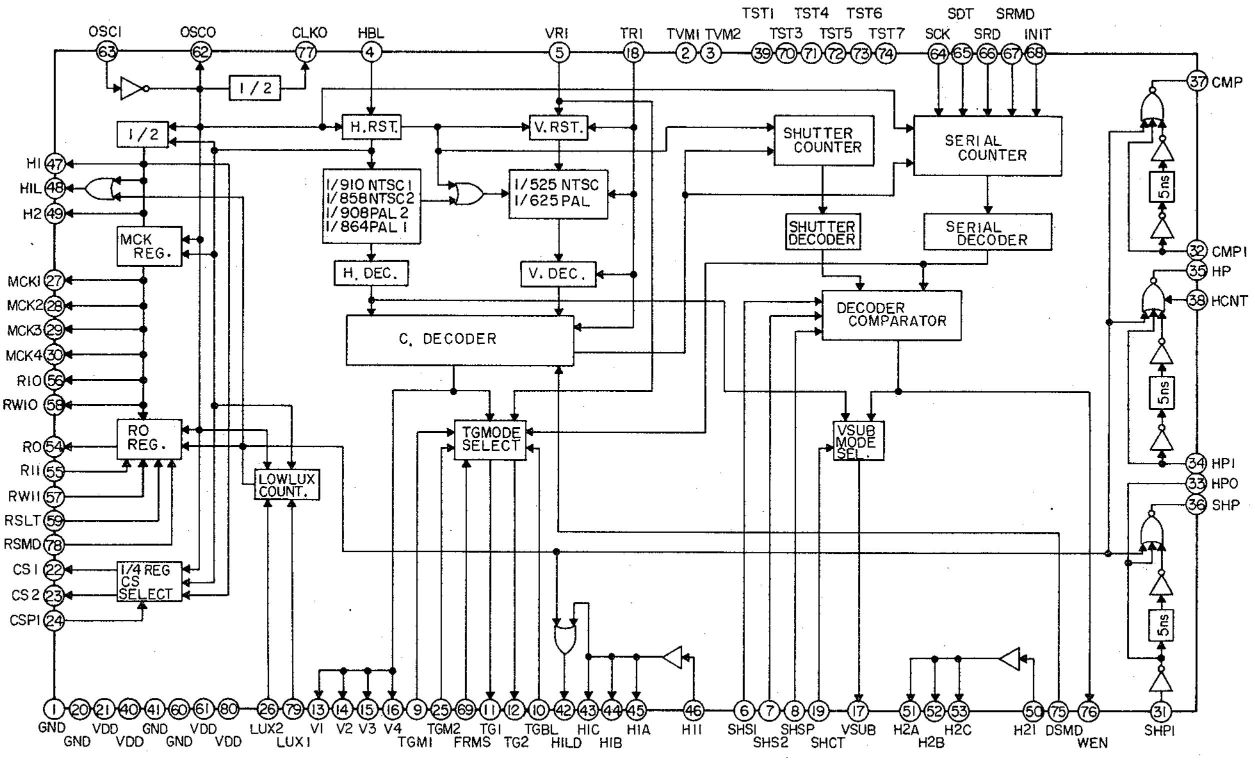
INPUT WAVE FORM

■ UPD9438BGK-BE9 【NEC】
(Timing Generator)

(Top View)


60 GND
59 RSLT
58 RWIO
57 RWII
56 RIO
55 RI1
54 RO
53 H2C
52 H2B
51 H2A
50 H2I
49 H2
48 H1L
47 H1
46 H1I
45 H1A
44 H1B
43 H1C
42 H1LD
41 GND
61 VDD
62 OSCO
63 OSC1
64 SCK
65 SDT
66 SRD
67 SRMD
68 INIT
69 FRMS
70 TST3
71 TST4
72 TST5
73 TST6
74 TST7
75 DSMD
76 WEN
77 CLKO
78 RSMD
79 LUX1
80 VDD
40 VDD
39 TST1
38 HCNT
37 CMP
36 SHP
35 HP
34 HPI
33 HPO
32 CHPI
31 SHPI
30 MCK4
29 MCK3
28 MCK2
27 MCK1
26 LUX2
25 TGM2
24 CSP1
23 CS2
22 CS1
21 VDD
1 GND
2 TVM1
3 TVM2
4 HBL
5 VRI
6 SHS1
7 SHS2
8 SHSP
9 TGM1
10 TGBL
11 TG1
12 TG2
13 V1
14 V2
15 V3
16 V4
17 VSUB
18 TR1
19 SHCT
20 GND

BLOCK DIAGRAM


OSCI
OSCO
CLKO
HBL
VRI
TRI
TVMI
TVM2
TSTI
TST3
TST4
TST5
TST6
TST7
SCK
SDT
SRD
SRMD
INIT
1/2
1/2
H.RST.
V.RST.
SHUTTER COUNTER
SERIAL COUNTER
I/910 NTSC I
I/858NTSC2
I/908PAL 2
I/864PAL I
I/525 NTSC
I/625 PAL
MCK REG.
H. DEC.
V. DEC.
SHUTTER DECODER
SERIAL DECODER
C. DECODER
DECODER COMPARATOR
RO REG.
TGMODE SELECT
VSUB MODE SEL.
LOWLUX COUNT.
1/4 REG CS SELECT
5ns
5ns
5ns
HI
HIL
H2
MCKI
MCK2
MCK3
MCK4
RIO
RWIO
RO
RII
RWII
RSLT
RSMD
CS I
CS 2
CSPI
CMP
CMPI
HP
HCNT
HPI
HPO
SHP
GND
GND
VDD
VDD
GND
GND
VDD
VDD
LUX2
LUX1
VI
V2
V3
V4
TGMI
TGM2
FRMS
TGI
TG2
TGBL
HILD
HIC
HIB
HIA
HII
SHSI
SHS2
SHSP
SHCT
VSUB
H2A
H2B
H2C
H21
DSMD
WEN
SHPI

● Pin function (UPD9438GK)

[Explanation of column]

Pin No.

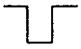
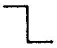
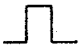
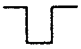
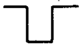
Pin Name

2	OSCO	Oscillation output			
		O			

Type of buffer - SU : Schmitt PU : Pull-up PD : Pull-down
TR : Tri-state Figure : Output current (mA)

Input and/or output - I : Input O : Output

Polarity

No.	Symbol		Description			
1	GND		Grounding			
2	TVM1	—	TV mode 1	I	PD	
3	TVM2	—	TV mode 2	I	PD	
4	HBL		Horizontal Blanking input (øHBLK) • Horizontal SYNC. input terminal to be connected with IFHB of SYNC generator. The leading edge is detected.	I	SH	PU
5	VRI		EXT. vertical SYNC input • Vertical SYNC. input terminal to be connected with IFVSA of sync generator. The leading edge is detected.	I	SH	PU
6	SHS1	—	Shutter speed 1	I	PD	
7	SHS2	—	Shutter speed 2	I	PD	
8	SHSP	—	Shutter speed setting	I	PD	
9	TGM1	—	Storage Mode 1 • Input terminal for store mode setting. Use this terminal in combination with DSMD (pin 75) and TGM2 (pin 25). (Refer to the last page of this description of pin functions.)	I	PD	
10	TGBL		Transfer gate blanking • Slow shutter speed input for multi-speed shutter • Becomes active as blanking pulse at the rise of pulse.	I	PD	
11	TG1		Transfer gate pulse 1 • Transfer gate drive pulse to transfer signal from photodiode to the vertical register (V1). (pin 13)	O	9	
12	TG2		Transfer gate pulse 2 • Transfer gate drive pulse to transfer signal from photodiode to the vertical register (V3). (pin 15)	O	9	

	NTSC 1 1820 FH	NTSC 2 1716 FH	PAL 2 1816 FH	PAL 1 1728 FH
TVM1	L	H	L	H
TVM2	L	L	H	H

SHS2	SHS1	SHSP = L	FIELD SHSP = H	FRAME SHSP = H
L	L	1/60	1/60	1/30
L	H	1/100	1/30	1/15
H	L	1/2000	1/7.5	1/3.75
H	H	1/10000	1/3.75	1/1.875

Note: "FRAME" expresses storage time based on TG2 (pin 12) as the reference.

No.	Symbol	Description
13	V1 ⊓⊔	V. transfer pulse 1 O 9 • Vertical transfer register drive pulse
14	V2 ⊓⊔	V. transfer pulse 2 O 9 • Vertical transfer register drive pulse
15	V3 ⊓⊔	V. transfer pulse 3 O 9 • Vertical transfer register drive pulse
16	V4 ⊓⊔	V. transfer pulse 4 O 9 • Vertical transfer register drive pulse
17	VSUB —	Board shutter pulse O 13 • Board shutter pulse to operate VOD shutter
18	TRI —	Random shutter function reset mode selection L: Sync reset mode H: Sync non-reset mode I PD
19	SHCT ⊓⊔	Shutter control I SH PD • Terminal to control shutter speed of multi-speed shutter. • When this terminal is used, set the serial shutter to 1/10000. • High level stops VSUB (pin 17) output.
20	GND	Grounding
21	VDD	+5 V power supply
22	CS1 _⊓_	Color sampling pulse 1 O 9 • Sampling pulse output for color separation sample holding CSP2 CSP1 CS1 CS2 L L MCK1 MCK1 L H MCK2 MCK2 H L MCK3 MCK3 H H MCK4 MCK4
23	CS2 _⊓_	Color sampling pulse 2 O 9
24	CSP1 —	Color sampling pulse phase setting 1 I PD • Phases of CS1 (pin 22) and CS2 (pin 23) are settable by this pulse.
25	TGM2 —	Store mode 2 I PD Input terminal for store mode setting. Use this terminal in combination with DSMD (pin 75) and TGM1 (pin 9). (Refer to the last page of this description of pin functions.)
26	LUX2 ⊓⊔	Low lux mode 2 I PU Low Lux setting terminal 2. L : Corresponding to CDS, H : Corresponding to RDS Refer to the usage example and Lolux mode tables.
27	MCK1 ⊓⊔	Main clock 1 O 9 • Main clock fck output terminal. • Output signal having the same phase as H1 (pin 47).
28	MCK2 ⊓⊔	Main clock 2 O 9 • Main clock fck output terminal. • Output signal whose phase is 90° delayed from H1 (pin 47).

No.	Symbol	Description
29	MCK3 ⊓⊔	Main clock 3 O 9 • Main clock fck output terminal. • Output signal whose phase is 180° delayed from H1 (No. 47).
30	MCK4 ⊓⊔	Main clock 4 O 9 • Main clock fck output terminal. • Output signal whose phase is 270° delayed from H1 (No. 47).
31	SHP1 ⊓⊔	Sample holding pulse input I SH • Input terminal to receive SHP (No. 36) output signal. • Input signal is equivalent to main clock.
32	CMPI ⊓⊔	Clamp pulse input I SH • Input terminal to receive SHP (No. 36) output signal. • Input signal is equivalent to main clock.
33	HPO _⊓_	Half pitch output O 9 • Output signal approx. 20 ns behind of SHP (No. 36) output. • To be connected with HP1 (No. 34) through capacitor and resistor.
34	HPI _⊓_	Half pitch input I SH • Input terminal for fine adjustment of HP (No. 35) output. • To be connected with HPO (No. 33) through capacitor and resistor.
35	HP _⊓_	HP Half pitch O 9 • Half pitch signal is used as a sampling one.
36	SHP _⊓_	Sample holding pulse O 9 • To sample video signal.
37	CMP _⊓_	Clamp pulse O 9 • To clamp video siganl.
38	HCNT —	Half pitch control I SH PD • To fix HP (No. 35) pulse at High level. L : Normal mode output H : High level fixing output
39	TST1 —	Test pin 1 I PD • Should be open in general.
40	VDD	+5 V power supply
41	GND	Grounding
42	H1LD ⊓⊔	H. final gate transfer pulse for 3-CCD O 9 • Horizontal drive pulse output that has High level in horizontal blanking period. • When set to the Lolux mode corresponding to RDS, the central part of drive signal output is taken off. (Refer to the Lolux mode table)
43	H1C ⊓⊔	H. transfer pulse for 3-CCD O 13 • Horizontal drive pulse output that has High level in horizontal blanking period
44	H1B ⊓⊔	H. transfer pulse for 3-CCD O 13 • Horizontal drive pulse output that has High level in horizontal blanking period
45	H1A ⊓⊔	H. transfer pulse for 3-CCD O 13 • Horizontal drive pulse output that has High level in horizontal blanking period

No.	Symbol	Description				
46	H1I ⊓⊔	H. transfer pulse input for 3-CCD	I			• Input terminal to distribute signal to horizontal transfer pulse terminals for 3-CCD. • Connect with H1 (No. 47) for use of 3-CCD camera.
47	H1 ⊓⊔	H. transfer pulse	O	13		• Horizontal drive signal output that has High level in horizontal blanking period. • Connect with H1I (No. 46) for use of 3-CCD camera.
48	H1L ⊓⊔	H. final gate transfer pulse	O	9		• Horizontal drive signal output that has High level in horizontal blanking period. • When set to the Lolux mode corresponding to RDS, the central part of drive signal output is taken off. (Refer to the Lolux mode table)
49	H2 ⊓⊔	H. transfer pulse	O	13		• Horizontal drive signal output that has Low level in horizontal blanking period. • Connect with H2I (No. 50) for use of 3-CCD camera.
50	H2I ⊓⊔	H. transfer pulse input for 3-CCD	I			• Input terminal to distribute signal to horizontal transfer pulse terminals for 3-CCD. • Connect with H2 (No. 49) for use of 3-CCD camera.
51	H2A ⊓⊔	H. transfer pulse for 3-CCD	O	13		• Horizontal drive signal output that has Low level in horizontal blanking period.
52	H2B ⊓⊔	H. transfer pulse for 3-CCD	O	13		• Horizontal drive signal output that has Low level in horizontal blanking period.
53	H2C ⊓⊔	H. transfer pulse for 3-CCD	O	13		• Horizontal drive signal output that has Low level in horizontal blanking period.
54	RO _⊓_	H. output reset	O	9		• CCD output reset pulse terminal. • This pulse is added with DC component and supplied to øR terminal of CCD.
55	RII ⊓⊔	H. output reset timing input	I	PU	SH	• Input terminal to adjust output timing of RO (No. 54) with external input. • Active when RSLT (No. 59) has High level. To be connected with RIO (No. 56).
56	RIO ⊓⊔	H. output reset timing output	O	9		• Output terminal to adjust output timing of RO (No. 54) with external input. • To be connected with RII (No. 55).
57	RWII ⊓⊔	H. output reset pulse width setting input	I	PU	SH	• Input terminal to adjust pulse width of RO (No. 54) with external input. • Active when RSLT (No. 59) has High level. To be connected with RWIO (No. 58).
58	RWIO ⊓⊔	H. output reset pulse width setting output	O	9		• Output terminal to adjust pulse width of RO (No. 54) with external input. • To be connected with RWII (No. 57).
59	RSLT —	H. output reset switching	I	PD		• Input terminal to switch setting mode of RO (No. 54) output. L : Internal setting H : External setting
60	GND	Grounding				
61	VDD	+5 V power supply				
62	OSCO ⊓⊔	Oscillator output	O			• Output terminal of built-in oscillation circuit

No.	Symbol	Description
63	OSCI ⊔⊓	Oscillator input I │ │ • Input terminal of built-in oscillator circuit
64	SCK ⊓⊔	Serial clock I │ │ • Clock input terminal for serial interface. • Reads in at the pulse rise and inputs 1/4 frequency of original oscillation or lower.
65	SDT —	Serial data I │ │ • Data input terminal for serial interface. Input data is positive logic. • Sequential reading to start with LSB.
66	SRD —	Reception enable signal O │ 9 │ • Enable signal output terminal for serial interface to inform microprocessor whether it is enabled for data reception or disabled. L : Enabled for data reception H : Disabled for data reception
67	SRMD —	Reception mode switching I │ PD │ • L : Reception is possible only in V. blanking period. When reception does not finish in V. blanking period : Ineffective • H : Reception is always possible.
68	INIT —	Serial reset I │ │ • L : Disables serial interface from operation, or resets it forcibly (hard resetting). • H : Enables serial interface for original operation.
69	FRMS —	Frame select I │ PD │ 1-pixel or 2-pixel read-out field is selectable at a unit of frame. L : Ist and 2nd fields read-out H : 3rd and 4th fields read-out
70	TST3 —	Test pin 3 I │ PD │ • Should be open in general.
71	TST4 —	Test pin 4 I │ PD │ • Should be open in general.
72	TST5 —	Test pin 5 I │ PD │ • Should be open in general.
73	TST6 —	Test pin 6 I │ PD │ • Should be open in general.
74	TST7 —	Test pin 7 I │ PD │ • Should be open in general.
75	DSMD —	Device mode I │ PD │ • Switching terminal for 1/3-CCD or 2/3-CCD. L: Conforming to 1/3-CCD H: Conforming to 2/3-CCD
76	WEN ‾⊔‾	Write enable O │ 13 │ • Timing pulse output to write data in external memory at slow shutter speed. • At normal shutter speed, output signal is same with VD. • But it becomes 0.5H delayed signal in 2nd field.
77	CLKO ⊓⊔	Clock output O │ 13 │ • Half divided output of oscillation frequency
78	RSMD —	Switching of H. output reset pulse polarity O │ PD │ • To switch output polarity of RO (No. 54). L : Positive H : Negative
79	LUX 1 —	Low lux mode I │ PD │ • Low lux setting terminal L : Normal mode H: Lolux mode Refer to the low lux mode table.
80	VDD	+5 V power supply

- When CCD used and read-out method

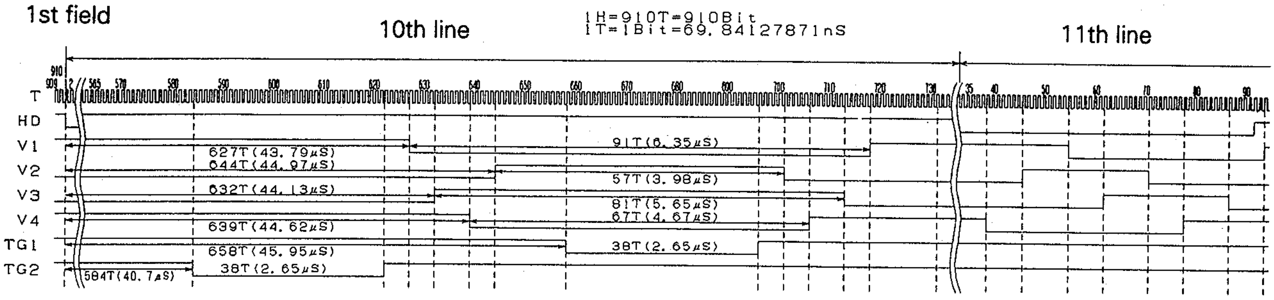
DSMD	TGM2	TGM1	When CCD used	Read-out method
L	L	L	1/3 CCD	Field
L	L	H	1/3 CCD	Frame
L	H	L	Inhabit	Inhabit
L	H	H	Inhabit	Inhabit
H	L	L	2/3 CCD	Field
H	L	H	2/3 CCD	Frame
H	H	L	2/3 CCD	2 pixels
H	H	H	2/3 CCD	1 pixel

- Lolux mode table

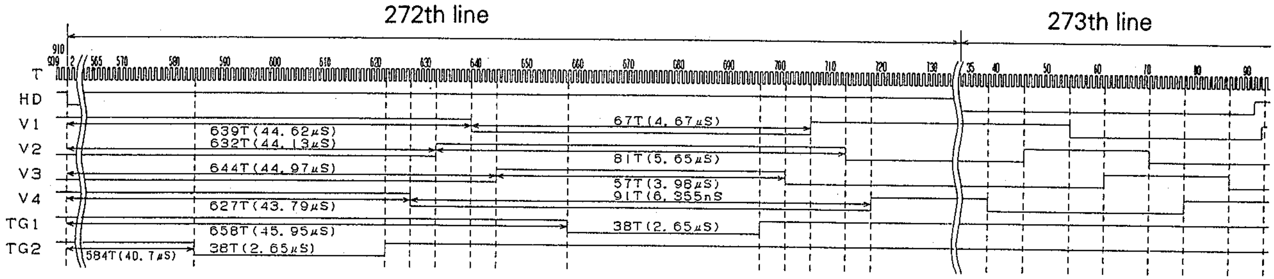
LUX2	LUX1	Mode
L	L	Normal
L	H	CDS
H	L	Normal
H	H	RDS

[NTSC 1] 1/3" CCD H-TIMING

1st field

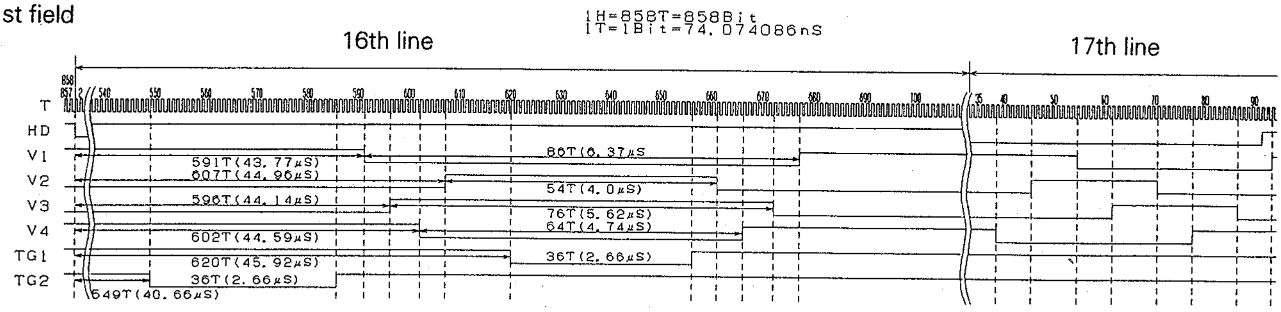

10th line
IH=910T=910Bit
IT=1Bit=69.84127871nS
11th line
T
HD
V1
V2
V3
V4
TG1
TG2
627T(43.79μS)
644T(44.97μS)
632T(44.13μS)
639T(44.62μS)
658T(45.95μS)
38T(2.65μS)
584T(40.7μS)
91T(6.35μS)
57T(3.98μS)
81T(5.65μS)
67T(4.67μS)
38T(2.65μS)

2nd field

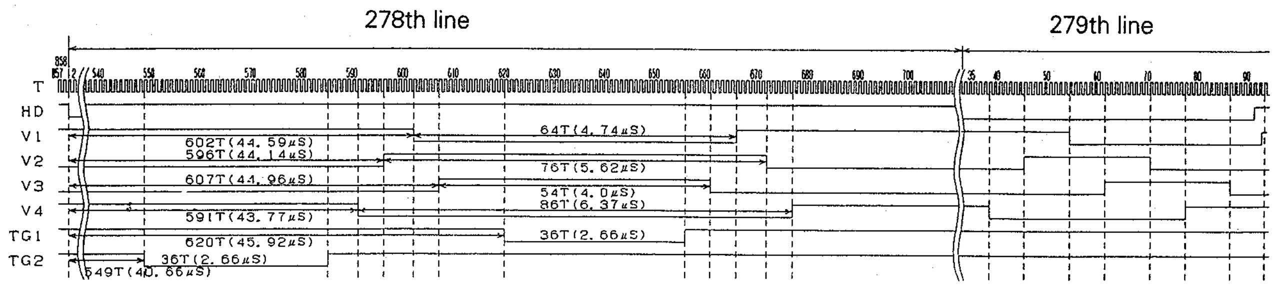

272th line
273th line
T
HD
V1
V2
V3
V4
TG1
TG2
639T(44.62μS)
632T(44.13μS)
644T(44.97μS)
627T(43.79μS)
658T(45.95μS)
38T(2.65μS)
584T(40.7μS)
67T(4.67μS)
81T(5.65μS)
57T(3.98μS)
91T(6.355nS)
38T(2.65μS)

[NTSC 2] 1/3" CCD H-TIMING

1st field

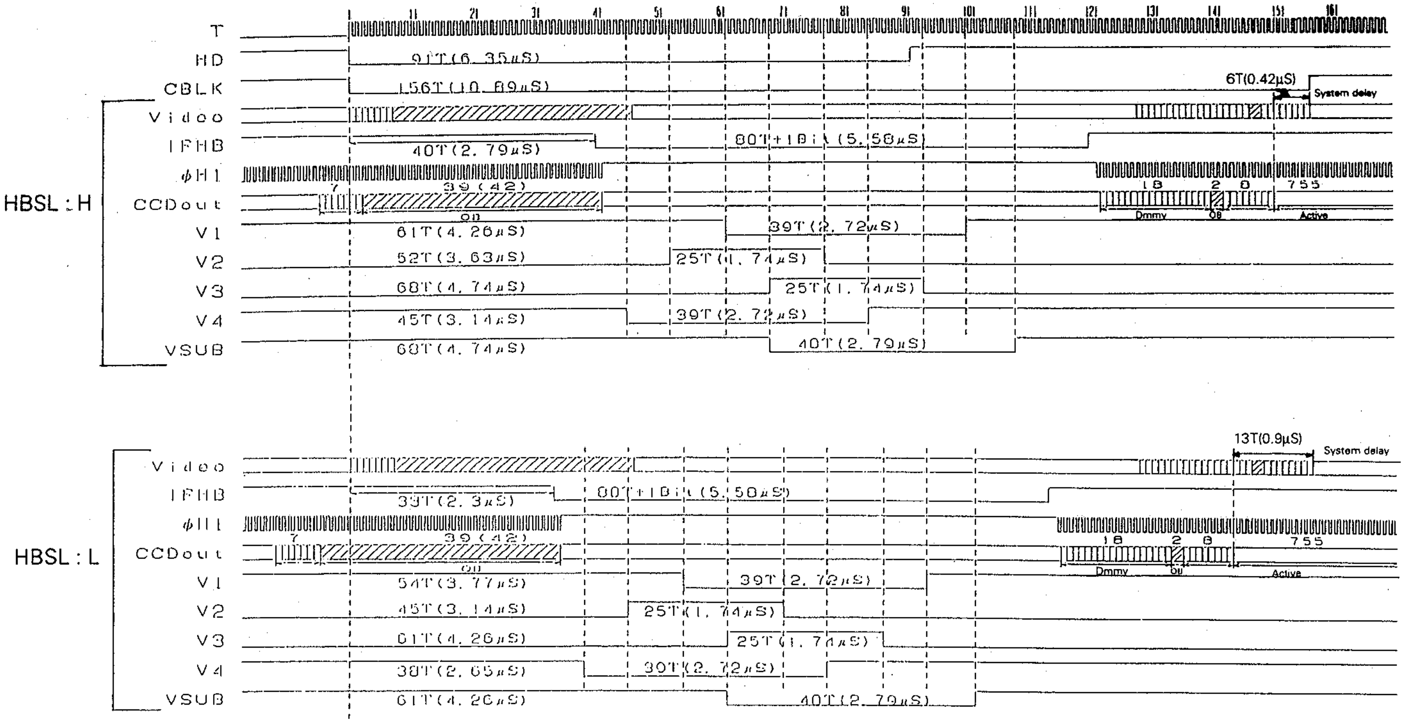

IH=858T=858Bit
IT=1Bit=74.074086nS
16th line
17th line
T
HD
V1
V2
V3
V4
TG1
TG2
591T(43.77μS)
607T(44.96μS)
596T(44.14μS)
602T(44.59μS)
620T(45.92μS)
36T(2.66μS)
649T(40.66μS)
86T(6.37μS
54T(4.0μS)
76T(5.62μS)
64T(4.74μS)
36T(2.66μS)

2nd field


278th line
279th line
T
HD
V1
V2
V3
V4
TG1
TG2
602T(44.59μS)
596T(44.14μS)
607T(44.96μS)
591T(43.77μS)
620T(45.92μS)
36T(2.66μS)
649T(40.66μS)
64T(4.74μS)
76T(5.62μS)
54T(4.0μS)
86T(6.37μS)
36T(2.66μS)

[NTSC 1] 1/3" CCD H-TIMING

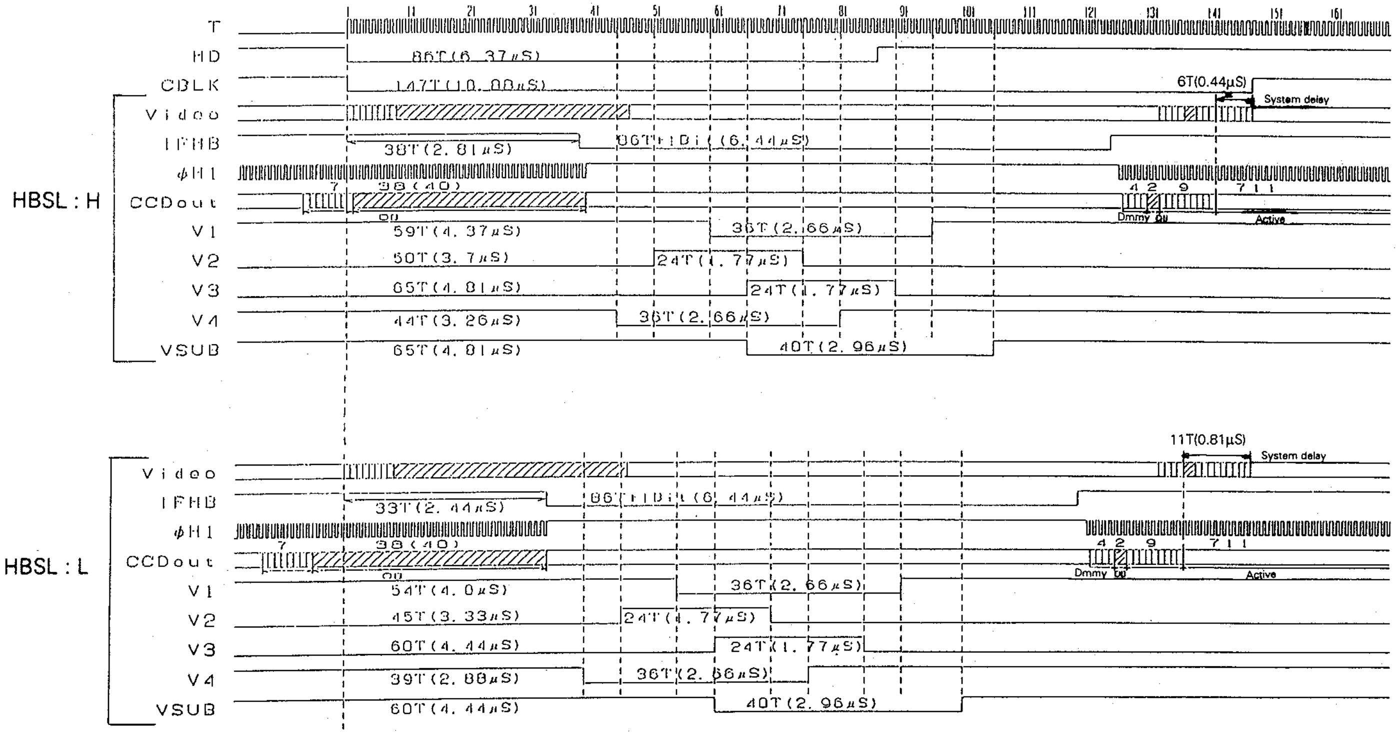
1H=910T=910Bit
1T=1Bit=69.84127871nS



1
11
21
31
41
51
61
71
81
91
101
111
121
131
141
151
161
T
HD
91T(6.35μS)
CBLK
156T(10.89μS)
6T(0.42μS)
System delay
Video
IFHB
40T(2.79μS)
80T+1Bit(5.58μS)
φH1
7
39(42)
HBSL : H
CCDout
OB
18
2
8
755
Dmmy
OB
Active
V1
61T(4.26μS)
39T(2.72μS)
V2
52T(3.63μS)
25T(1.74μS)
V3
68T(4.74μS)
25T(1.74μS)
V4
45T(3.14μS)
39T(2.72μS)
VSUB
68T(4.74μS)
40T(2.79μS)
13T(0.9μS)
System delay
Video
IFHB
33T(2.3μS)
80T+1Bit(5.58μS)
φH1
7
39(42)
HBSL : L
CCDout
OB
18
2
8
755
Dmmy
OB
Active
V1
54T(3.77μS)
39T(2.72μS)
V2
45T(3.14μS)
25T(1.74μS)
V3
61T(4.26μS)
25T(1.74μS)
V4
38T(2.65μS)
39T(2.72μS)
VSUB
61T(4.26μS)
40T(2.79μS)

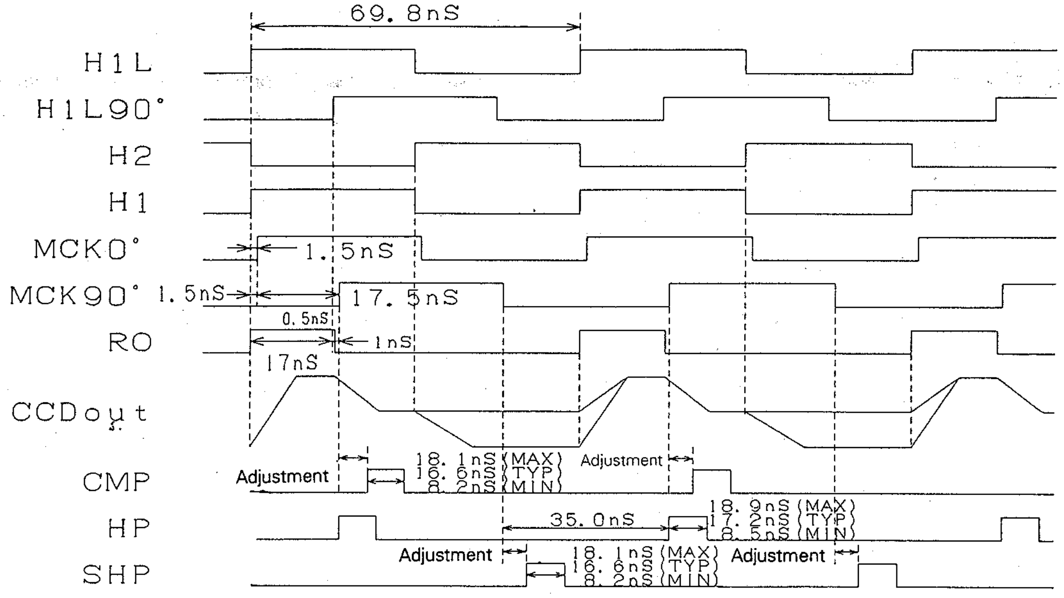
[NTSC 2] 1/3" CCD H-TIMING

1H=858T=858Bit
1T=1Bit=74.07408695μS

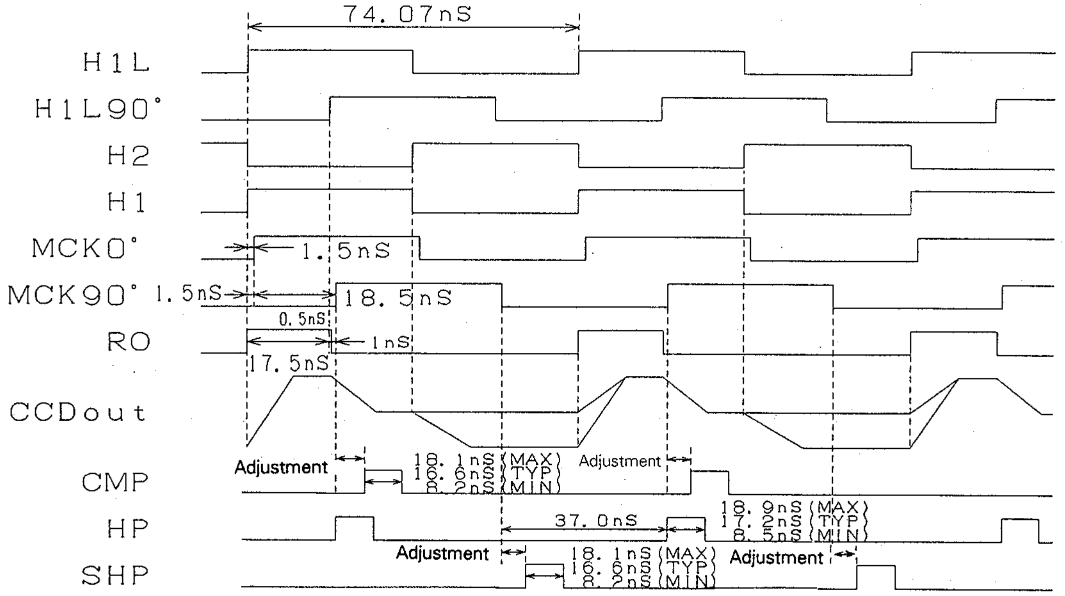


1
11
21
31
41
51
61
71
81
91
101
111
121
131
141
151
161
T
HD
86T(6.37μS)
CBLK
147T(10.88μS)
6T(0.44μS)
System delay
Video
IFHB
38T(2.81μS)
86T+1Bit(6.44μS)
φH1
7
38(40)
HBSL : H
CCDout
OB
42
9
711
Dmmy
OB
Active
V1
59T(4.37μS)
36T(2.66μS)
V2
50T(3.7μS)
24T(1.77μS)
V3
65T(4.81μS)
24T(1.77μS)
V4
44T(3.26μS)
36T(2.66μS)
VSUB
65T(4.81μS)
40T(2.96μS)
11T(0.81μS)
System delay
Video
IFHB
33T(2.44μS)
86T+1Bit(6.44μS)
φH1
7
38(40)
HBSL : L
CCDout
OB
42
9
711
Dmmy
OB
Active
V1
54T(4.0μS)
36T(2.66μS)
V2
45T(3.33μS)
24T(1.77μS)
V3
60T(4.44μS)
24T(1.77μS)
V4
39T(2.88μS)
36T(2.66μS)
VSUB
60T(4.44μS)
40T(2.96μS)

[NTSC 1] 1/3" CCD DRIVING PULSE H-TIMING


69. 8nS
H1L
H1L90°
H2
H1
MCK0°
1. 5nS
MCK90°
1. 5nS
17. 5nS
0. 5nS
RO
1nS
17nS
CCDout
CMP
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment
HP
35. 0nS
18. 9nS (MAX)
17. 2nS (TYP)
8. 5nS (MIN)
SHP
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment

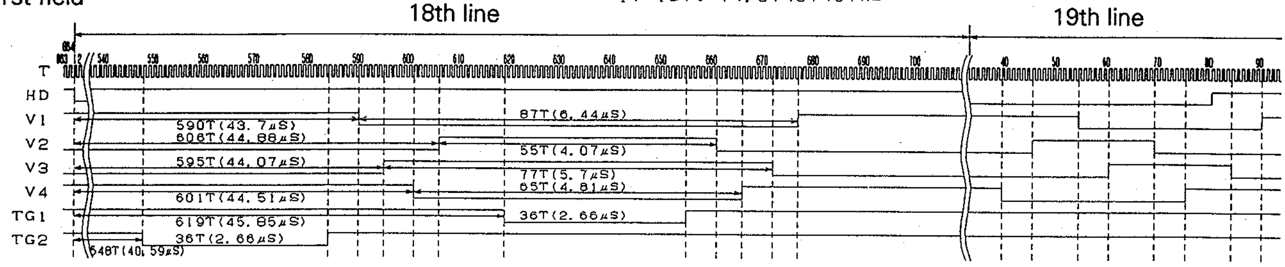
[NTSC 2] 1/3" CCD DRIVING PULSE H-TIMING


74. 07nS
H1L
H1L90°
H2
H1
MCK0°
1. 5nS
MCK90°
1. 5nS
18. 5nS
0. 5nS
RO
1nS
17. 5nS
CCDout
CMP
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment
HP
37. 0nS
18. 9nS (MAX)
17. 2nS (TYP)
8. 5nS (MIN)
SHP
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment

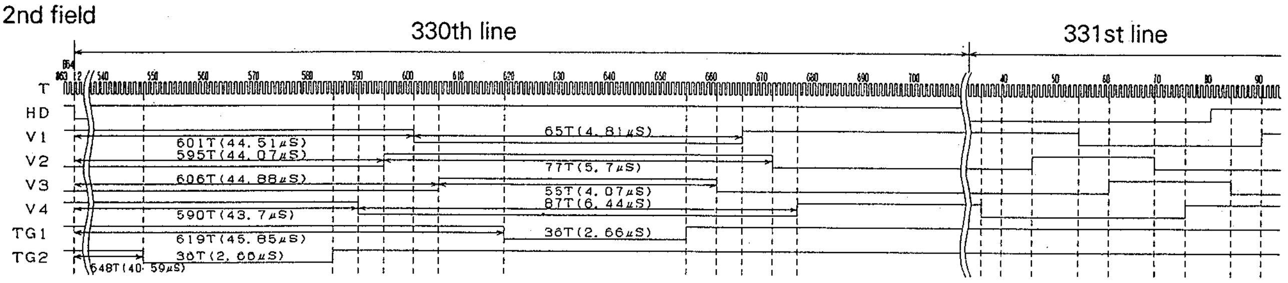
[PAL 1] 1/3" CCD H-TIMING

1st field

1H=864T=864Bit
1T=1Bit=74.07407407nS


18th line
19th line
T
HD
V1
V2
V3
V4
TG1
TG2
590T(43.7µS)
606T(44.88µS)
595T(44.07µS)
601T(44.51µS)
619T(45.85µS)
36T(2.66µS)
548T(40.59µS)
87T(6.44µS)
55T(4.07µS)
77T(5.7µS)
65T(4.81µS)
36T(2.66µS)

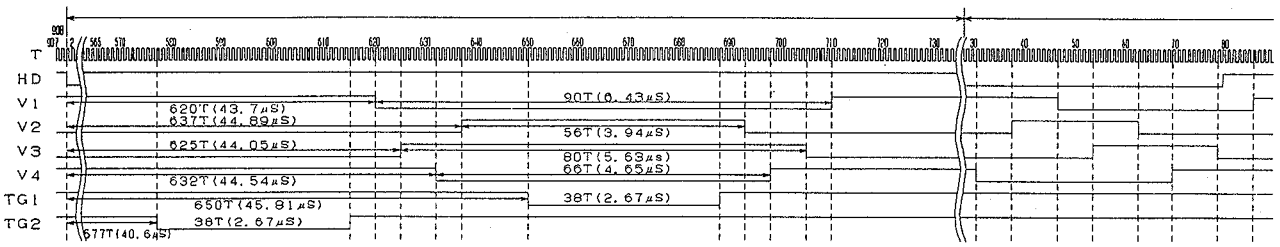
2nd field


330th line
331st line
T
HD
V1
V2
V3
V4
TG1
TG2
601T(44.51µS)
595T(44.07µS)
606T(44.88µS)
590T(43.7µS)
619T(45.85µS)
36T(2.66µS)
548T(40.59µS)
65T(4.81µS)
77T(5.7µS)
55T(4.07µS)
87T(6.44µS)
36T(2.66µS)

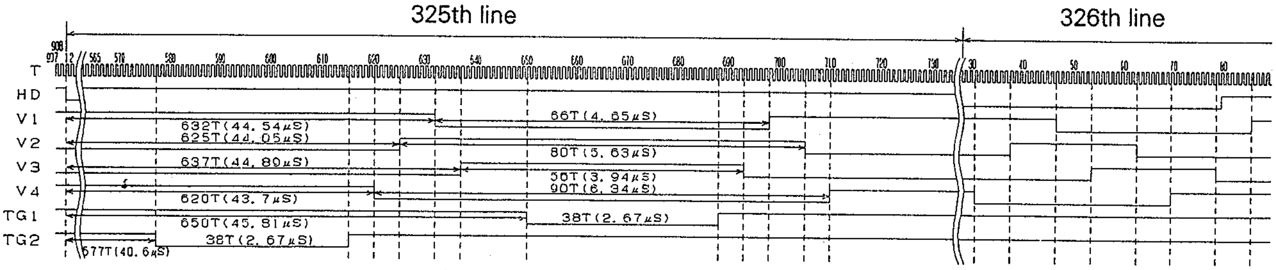
[PAL 2] 1/3" CCD H-TIMING

1st field

1H=908T=908Bit
1T=1Bit=70.4845815nS

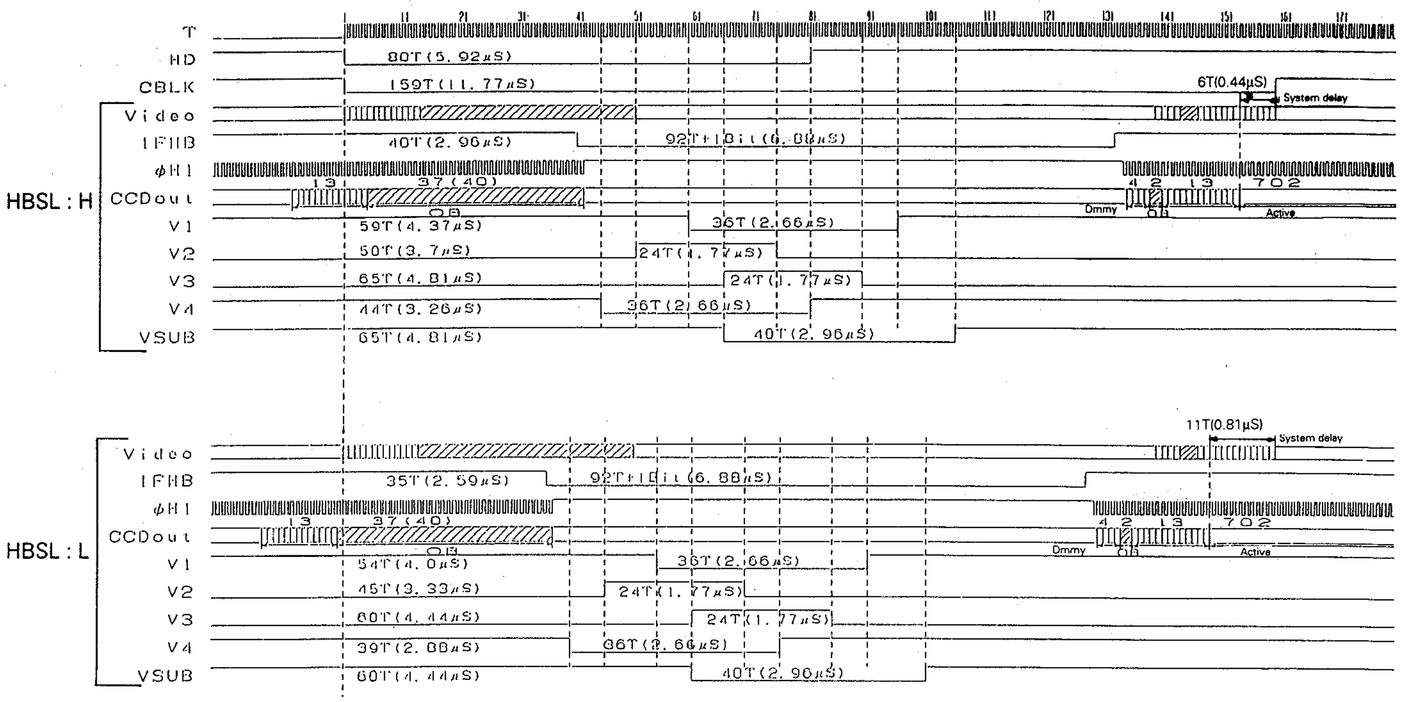

13th line
14th line
T
HD
V1
V2
V3
V4
TG1
TG2
620T(43.7µS)
637T(44.89µS)
625T(44.05µS)
632T(44.54µS)
650T(45.81µS)
38T(2.67µS)
577T(40.6µS)
90T(6.43µS)
56T(3.94µS)
80T(5.63µs)
66T(4.65µS)
38T(2.67µS)

2nd field


325th line
326th line
T
HD
V1
V2
V3
V4
TG1
TG2
632T(44.54µS)
625T(44.05µS)
637T(44.80µS)
620T(43.7µS)
650T(45.81µS)
38T(2.67µS)
577T(40.6µS)
66T(4.65µS)
80T(5.63µS)
56T(3.94µS)
90T(6.34µS)
38T(2.67µS)

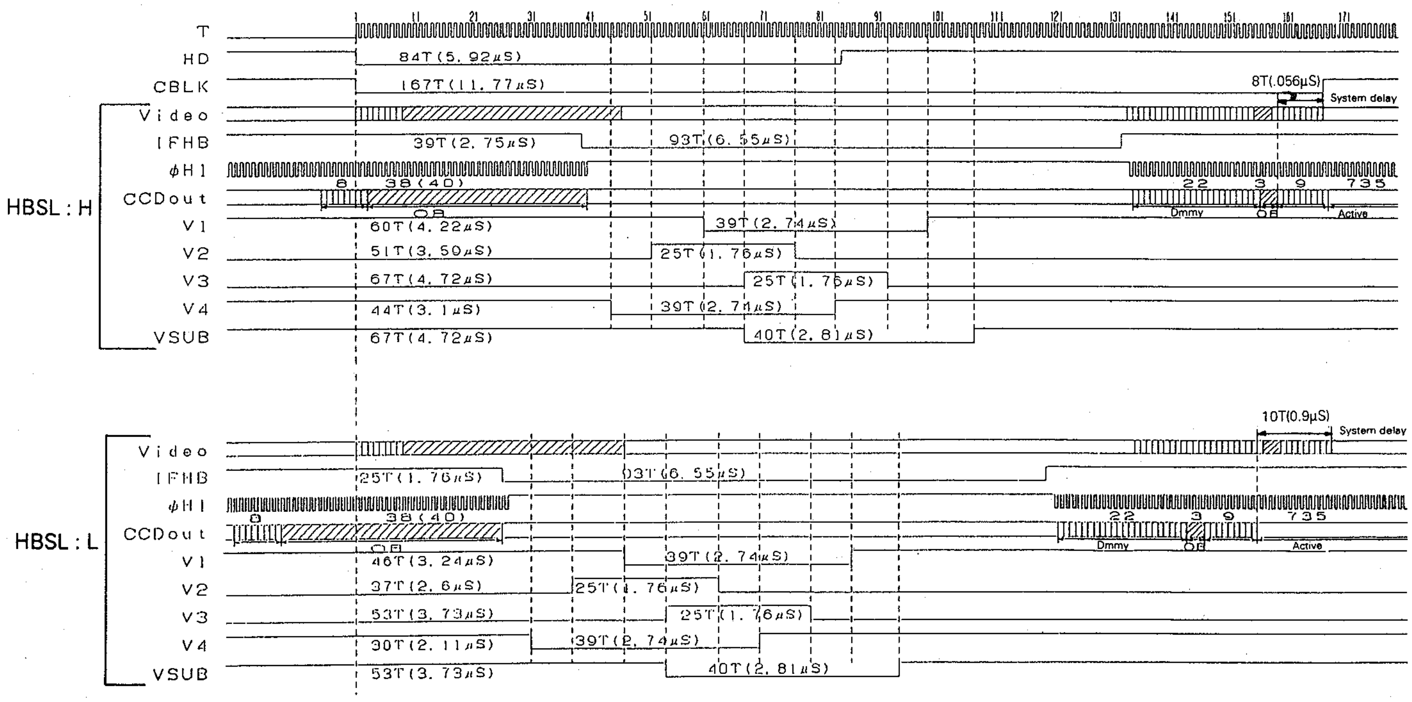
[PAL 1] 1/3" CCD H-TIMING

1H=864T=864Bit
1T=1Bit=74.07407407nS

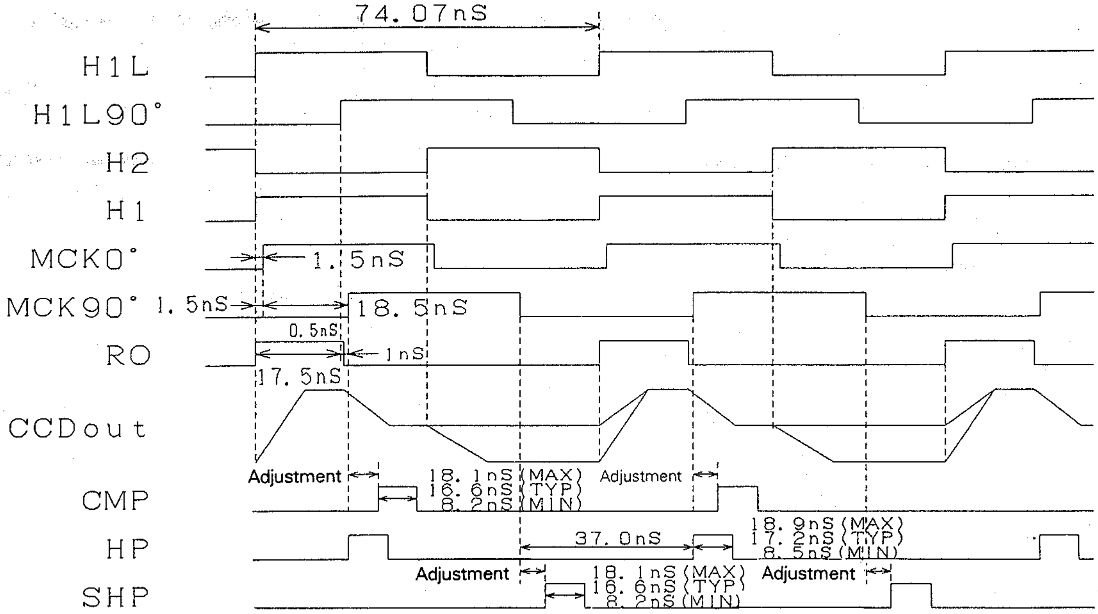

T
HD
CBLK
Video
IFHB
ϕH1
CCDout
V1
V2
V3
V4
VSUB
HBSL : H
80T(5.92μS)
159T(11.77μS)
6T(0.44μS)
System delay
40T(2.96μS)
92T+1Bit(6.88μS)
13
37(40)
OB
Dmmy
4 2
13
702
Active
59T(4.37μS)
36T(2.66μS)
50T(3.7μS)
24T(1.77μS)
65T(4.81μS)
24T(1.77μS)
44T(3.26μS)
36T(2.66μS)
65T(4.81μS)
40T(2.96μS)
HBSL : L
11T(0.81μS)
System delay
35T(2.59μS)
92T+1Bit(6.88μS)
13
37(40)
OB
4 2
13
702
Dmmy
Active
54T(4.0μS)
36T(2.66μS)
45T(3.33μS)
24T(1.77μS)
60T(4.44μS)
24T(1.77μS)
39T(2.88μS)
36T(2.66μS)
60T(4.44μS)
40T(2.96μS)

[PAL 2] 1/3" CCD H-TIMING

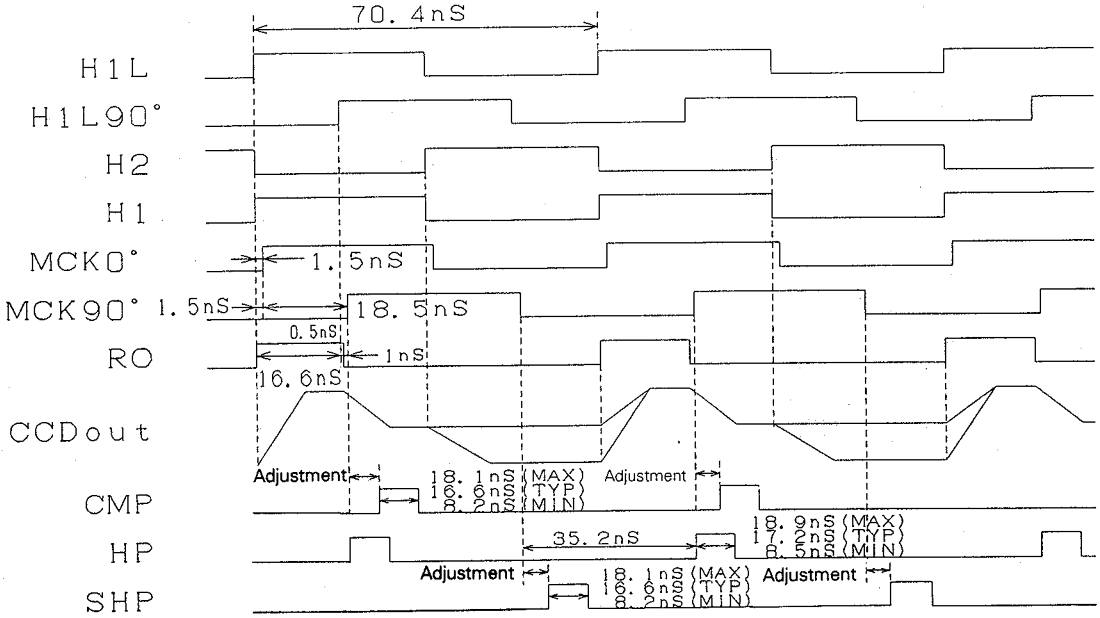
1H=908T=908Bit
1T=1Bit=70.4845815nS


T
HD
CBLK
Video
IFHB
ϕH1
CCDout
V1
V2
V3
V4
VSUB
HBSL : H
84T(5.92μS)
167T(11.77μS)
8T(.056μS)
System delay
39T(2.75μS)
93T(6.55μS)
8
38(40)
OB
22
3
9
735
Dmmy
Active
60T(4.22μS)
39T(2.74μS)
51T(3.50μS)
25T(1.76μS)
67T(4.72μS)
25T(1.76μS)
44T(3.1μS)
39T(2.74μS)
67T(4.72μS)
40T(2.81μS)
HBSL : L
10T(0.9μS)
System delay
25T(1.76μS)
93T(6.55μS)
8
38(40)
OB
22
3
9
735
Dmmy
Active
46T(3.24μS)
39T(2.74μS)
37T(2.6μS)
25T(1.76μS)
53T(3.73μS)
25T(1.76μS)
30T(2.11μS)
39T(2.74μS)
53T(3.73μS)
40T(2.81μS)

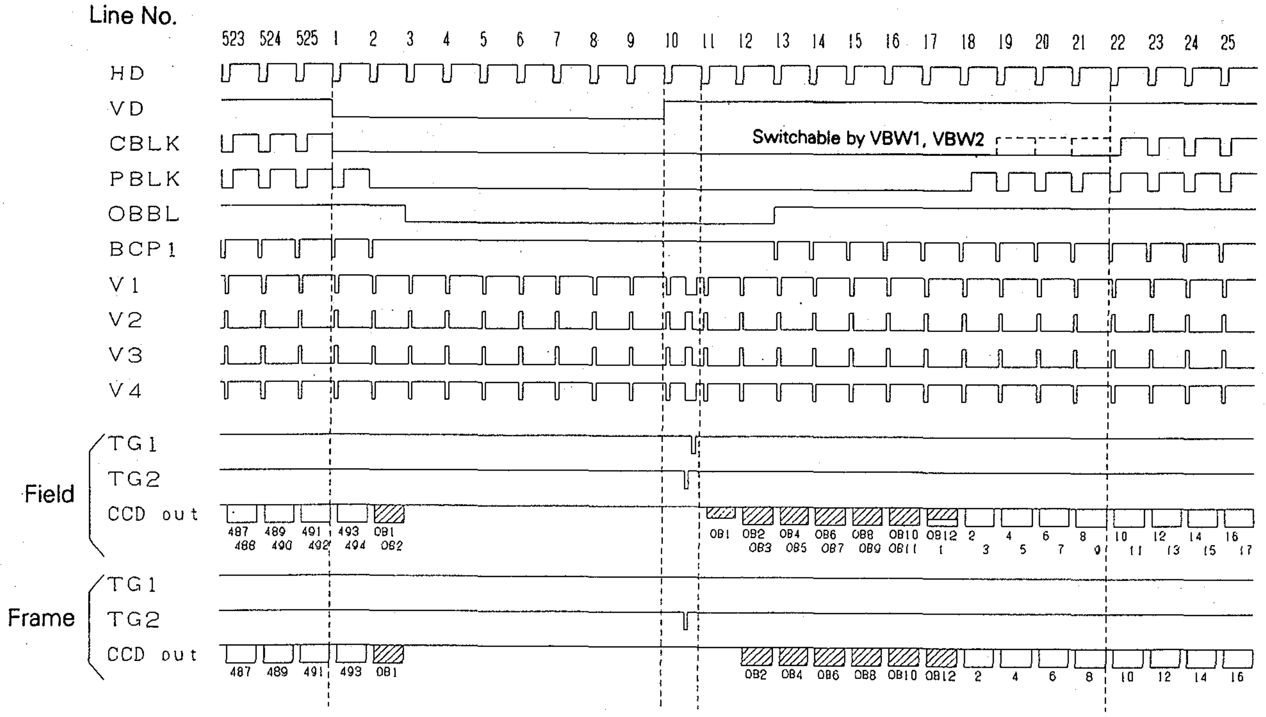
[PAL 1] 1/3" CCD DRIVING PULSE H-TIMING


74. 07nS
H1L
H1L90°
H2
H1
MCK0°
1. 5nS
MCK90° 1. 5nS
18. 5nS
0. 5nS
RO
1nS
17. 5nS
CCDout
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment
CMP
37. 0nS
18. 9nS (MAX)
17. 2nS (TYP)
8. 5nS (MIN)
HP
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment
SHP

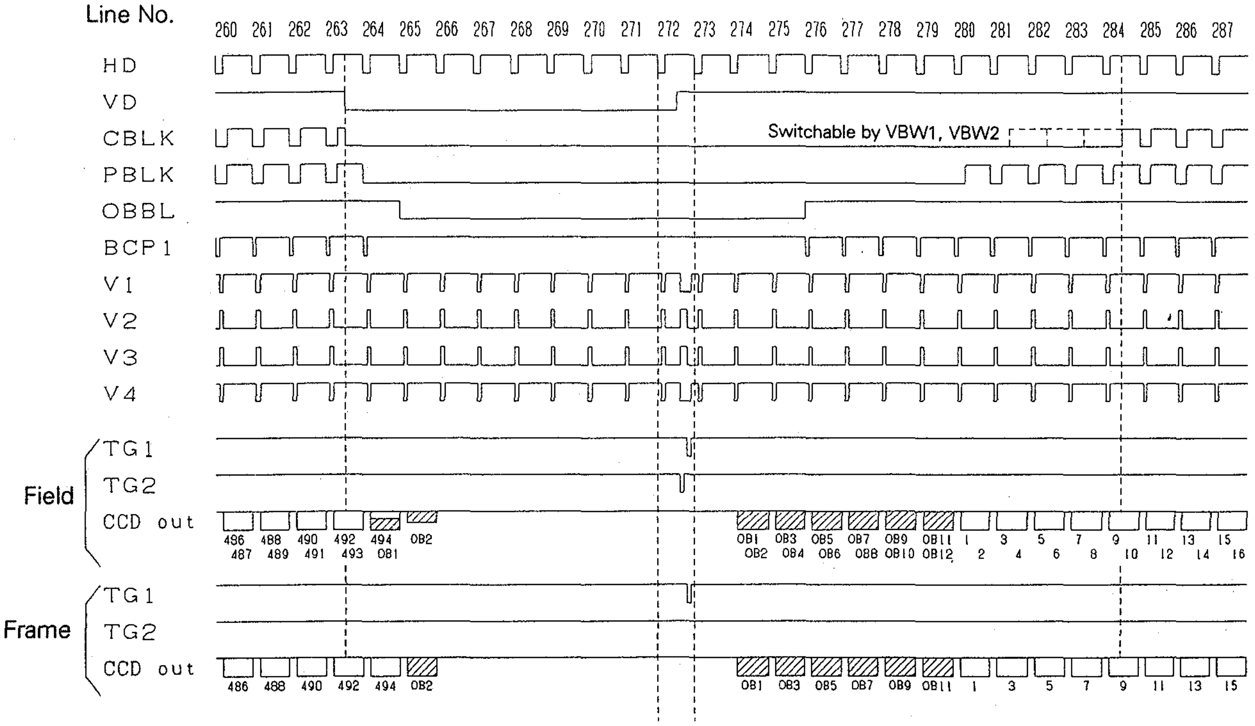
[PAL 2] 1/3" CCD DRIVING PULSE H-TIMING


70. 4nS
H1L
H1L90°
H2
H1
MCK0°
1. 5nS
MCK90° 1. 5nS
18. 5nS
0. 5nS
RO
1nS
16. 6nS
CCDout
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment
CMP
35. 2nS
18. 9nS (MAX)
17. 2nS (TYP)
8. 5nS (MIN)
HP
Adjustment
18. 1nS (MAX)
16. 6nS (TYP)
8. 2nS (MIN)
Adjustment
SHP

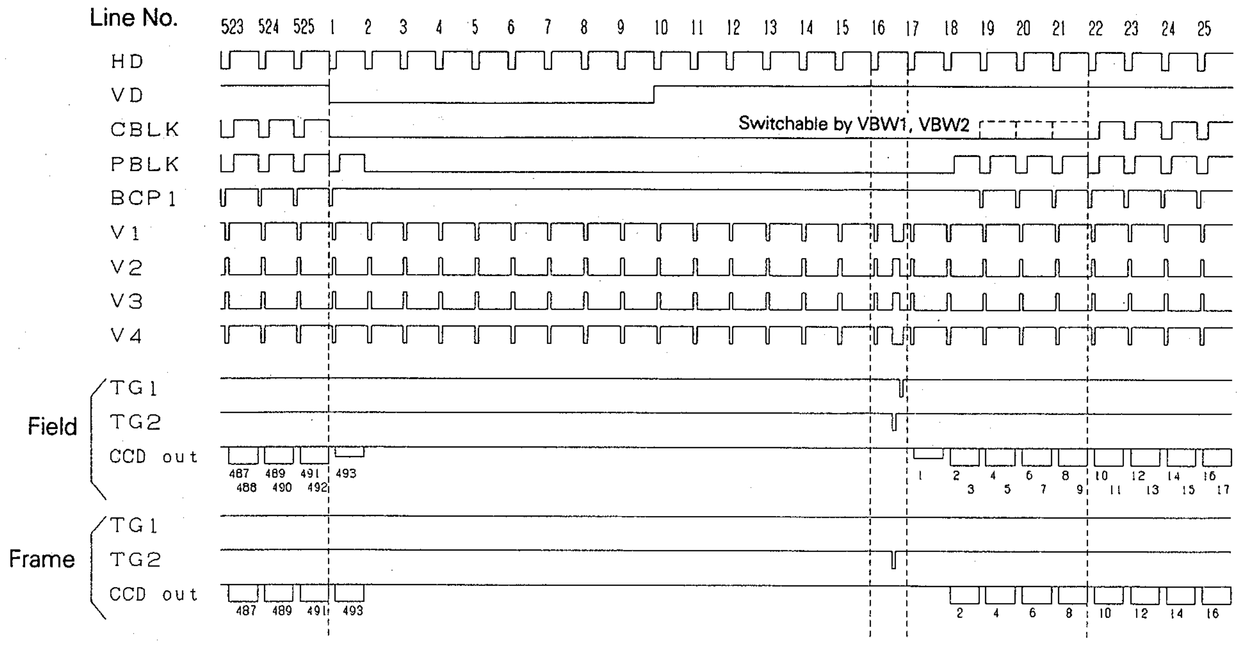
[NTSC 1] 1/3" CCD V-TIMING (1st field)


Line No.
523 524 525 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
HD
VD
CBLK
Switchable by VBW1, VBW2
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
487 489 491 493 OB1
488 490 492 494 OB2
OB1 OB2 OB4 OB6 OB8 OB10 OB12 2 4 6 8 10 12 14 16
OB3 OB5 OB7 OB9 OB11 1 3 5 7 9 11 13 15 17
Frame
TG1
TG2
CCD out
487 489 491 493 OB1
OB2 OB4 OB6 OB8 OB10 OB12 2 4 6 8 10 12 14 16

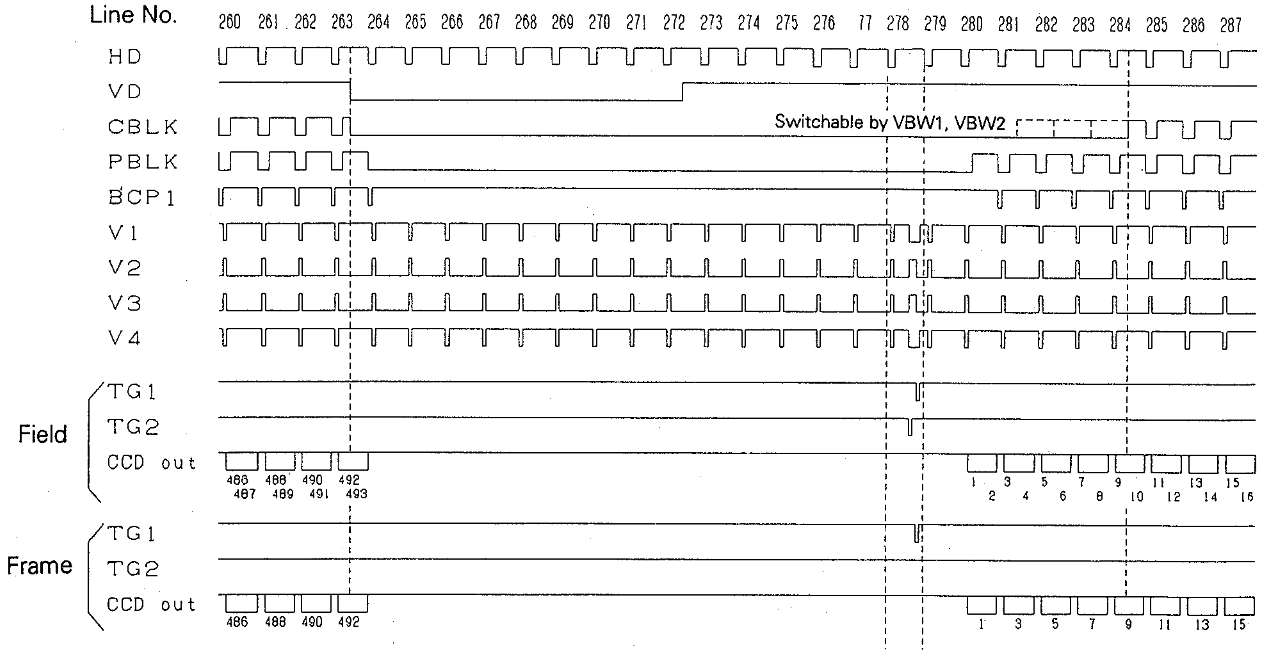
[NTSC 1] 1/3" CCD V-TIMING (2nd field)


Line No.
260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287
HD
VD
CBLK
Switchable by VBW1, VBW2
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
486 488 490 492 494 OB2
487 489 491 493 OB1
OB1 OB3 OB5 OB7 OB9 OB11 1 3 5 7 9 11 13 15
OB2 OB4 OB6 OB8 OB10 OB12 2 4 6 8 10 12 14 16
Frame
TG1
TG2
CCD out
486 488 490 492 494 OB2
OB1 OB3 OB5 OB7 OB9 OB11 1 3 5 7 9 11 13 15

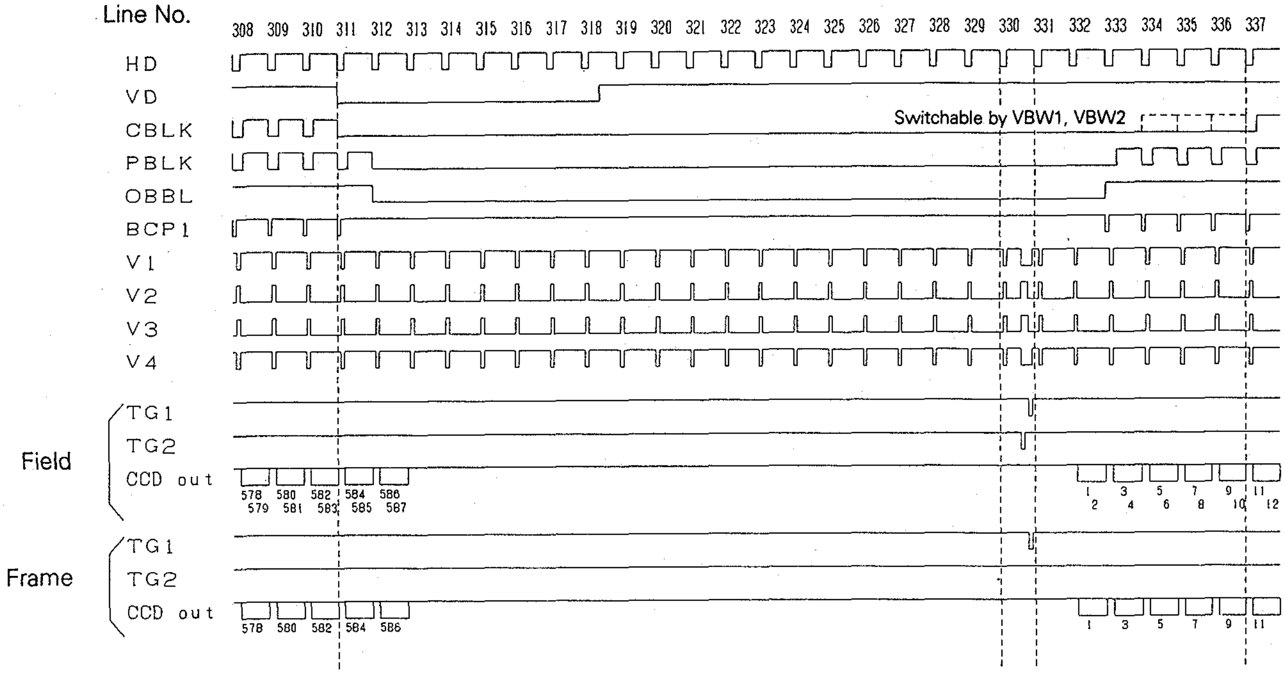
[NTSC 2] 1/3" CCD V-TIMING (1st field)


Line No.
523 524 525 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
HD
VD
CBLK
Switchable by VBW1, VBW2
PBLK
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
487 489 491 493
488 490 492
1 2 4 6 8 10 12 14 16
3 5 7 9 11 13 15 17
Frame
TG1
TG2
CCD out
487 489 491 493
2 4 6 8 10 12 14 16

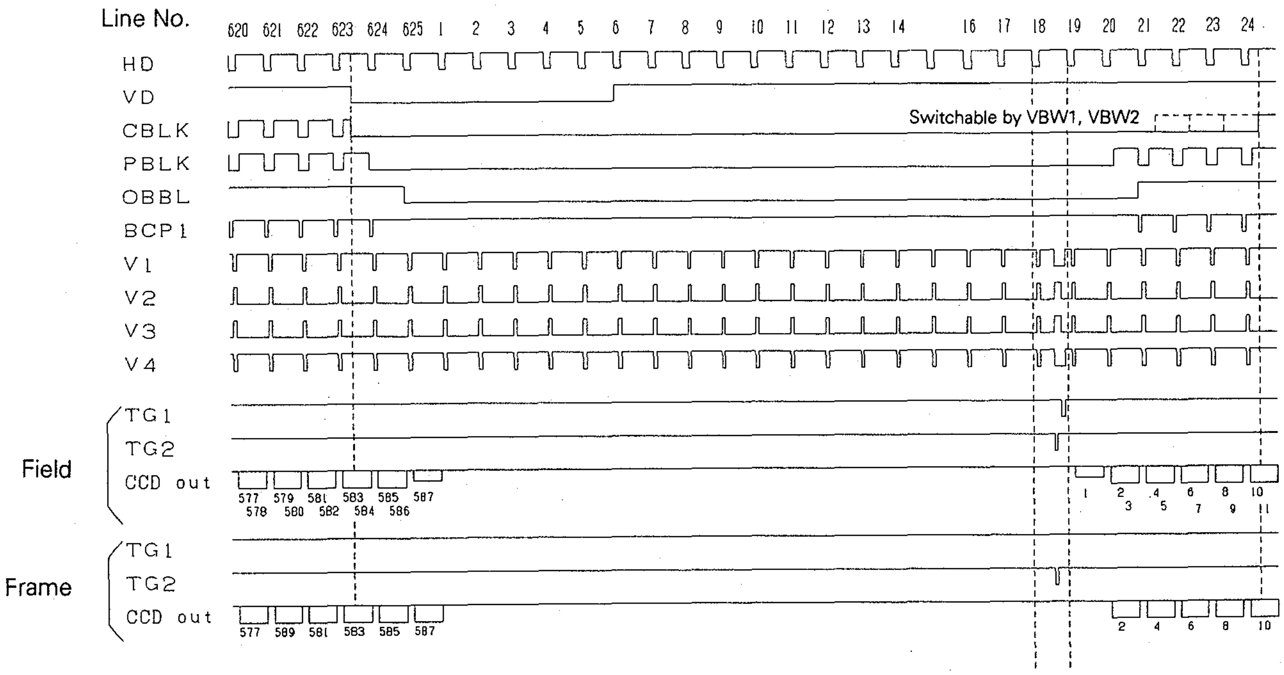
[NTSC 2] 1/3" CCD V-TIMING (2nd field)


Line No.
260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 77 278 279 280 281 282 283 284 285 286 287
HD
VD
CBLK
Switchable by VBW1, VBW2
PBLK
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
486 488 490 492
487 489 491 493
1 3 5 7 9 11 13 15
2 4 6 8 10 12 14 16
Frame
TG1
TG2
CCD out
486 488 490 492
1 3 5 7 9 11 13 15

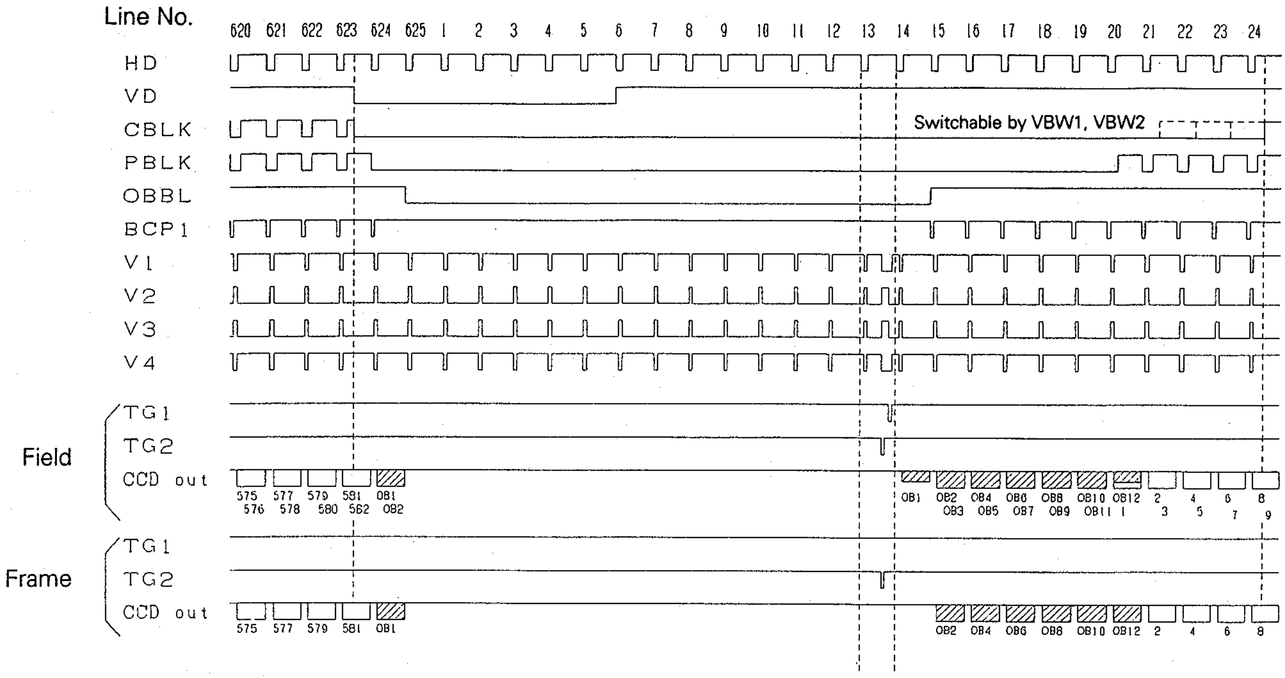
[PAL 1] 1/3" CCD V-TIMING (2nd field)


Line No.
308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
578 580 582 584 586
579 581 583 585 587
1 3 5 7 9 11
2 4 6 8 10 12
Frame
TG1
TG2
CCD out
578 580 582 584 586
1 3 5 7 9 11
Switchable by VBW1, VBW2

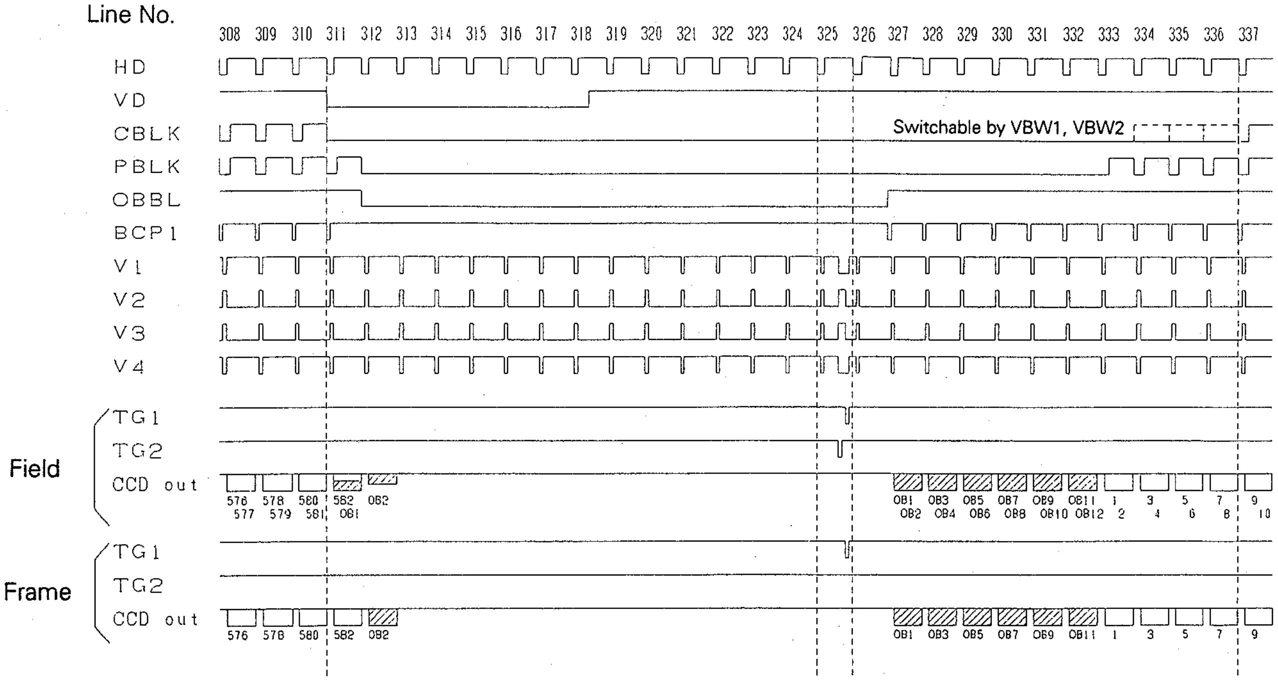
[PAL 1] 1/3" CCD V-TIMING (1st field)


Line No.
620 621 622 623 624 625 1 2 3 4 5 6 7 8 9 10 11 12 13 14 16 17 18 19 20 21 22 23 24
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
577 579 581 583 585 587
578 580 582 584 586
1 2 4 6 8 10
3 5 7 9 11
Frame
TG1
TG2
CCD out
577 589 581 583 585 587
2 4 6 8 10
Switchable by VBW1, VBW2

[PAL 2] 1/3" CCD V-TIMING (1st field)

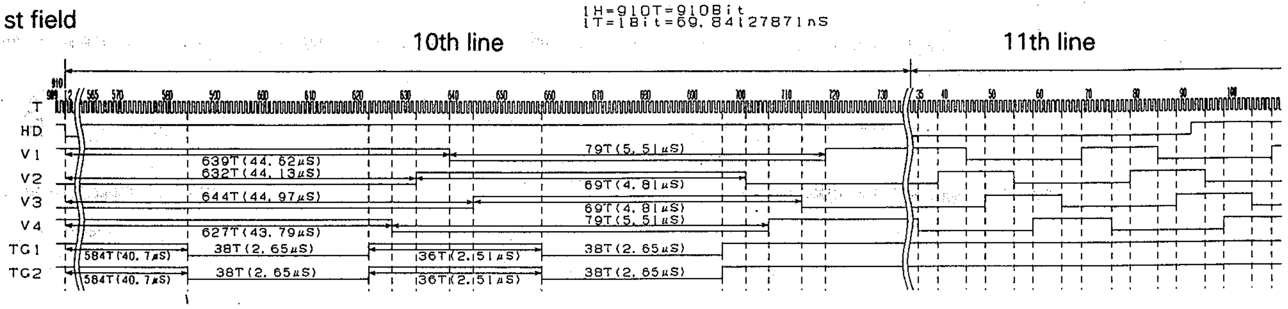

Line No.
620 621 622 623 624 625 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
575 577 579 581 OB1
576 578 580 582 OB2
OB1 OB2 OB4 OB6 OB8 OB10 OB12 2 4 6 8
OB3 OB5 OB7 OB9 OB11 1 3 5 7 9
Frame
TG1
TG2
CCD out
575 577 579 581 OB1
OB2 OB4 OB6 OB8 OB10 OB12 2 4 6 8
Switchable by VBW1, VBW2

[PAL 2] 1/3" CCD V-TIMING (2nd field)

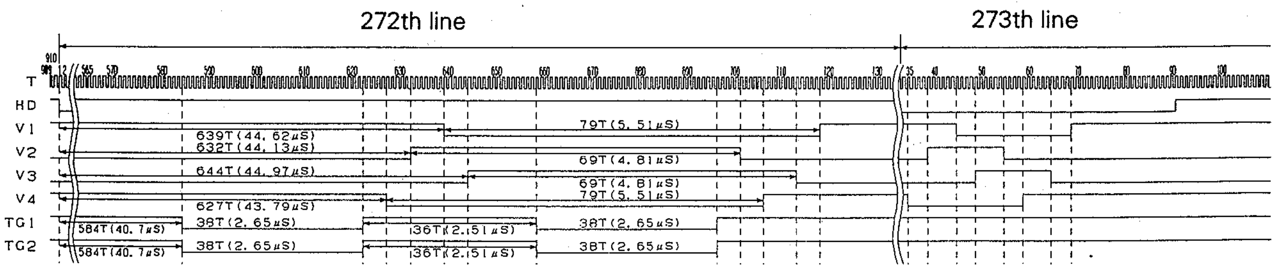

Line No.
308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
576 578 580 582 OB2
577 579 581 OB1
OB1 OB3 OB5 OB7 OB9 OB11 1 3 5 7 9
OB2 OB4 OB6 OB8 OB10 OB12 2 4 6 8 10
Frame
TG1
TG2
CCD out
576 578 580 582 OB2
OB1 OB3 OB5 OB7 OB9 OB11 1 3 5 7 9
Switchable by VBW1, VBW2

[NTSC] 2/3" CCD H-TIMING

1st field

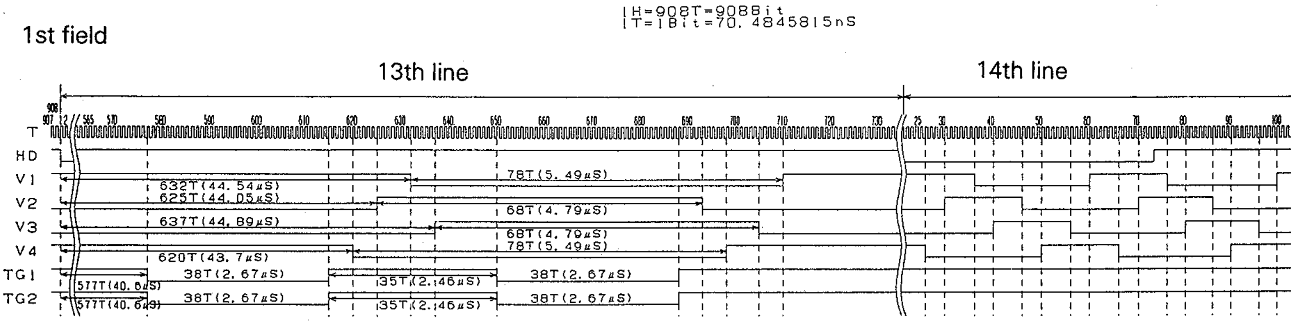

1H=910T=910Bit
1T=1Bit=69.84127871nS
10th line
11th line
T
HD
V1
V2
V3
V4
TG1
TG2
639T(44.62μS)
632T(44.13μS)
644T(44.97μS)
627T(43.79μS)
584T(40.7μS)
38T(2.65μS)
36T(2.51μS)
79T(5.51μS)
69T(4.81μS)

2nd field

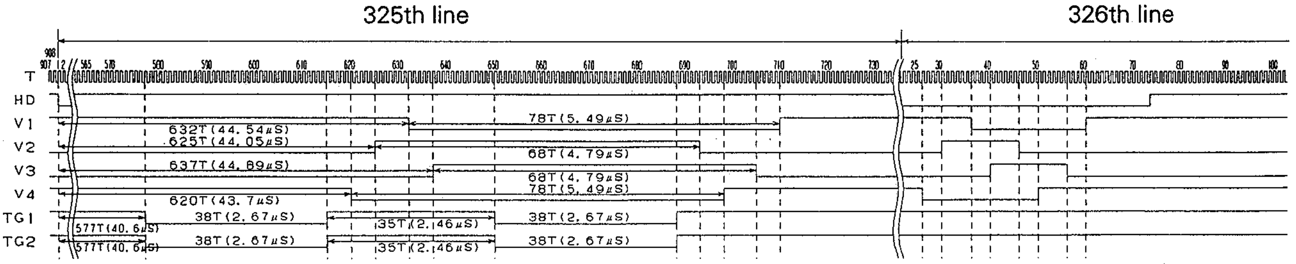

272th line
273th line
T
HD
V1
V2
V3
V4
TG1
TG2
639T(44.62μS)
632T(44.13μS)
644T(44.97μS)
627T(43.79μS)
584T(40.7μS)
38T(2.65μS)
36T(2.51μS)
79T(5.51μS)
69T(4.81μS)

[PAL] 2/3" CCD H-TIMING

1st field

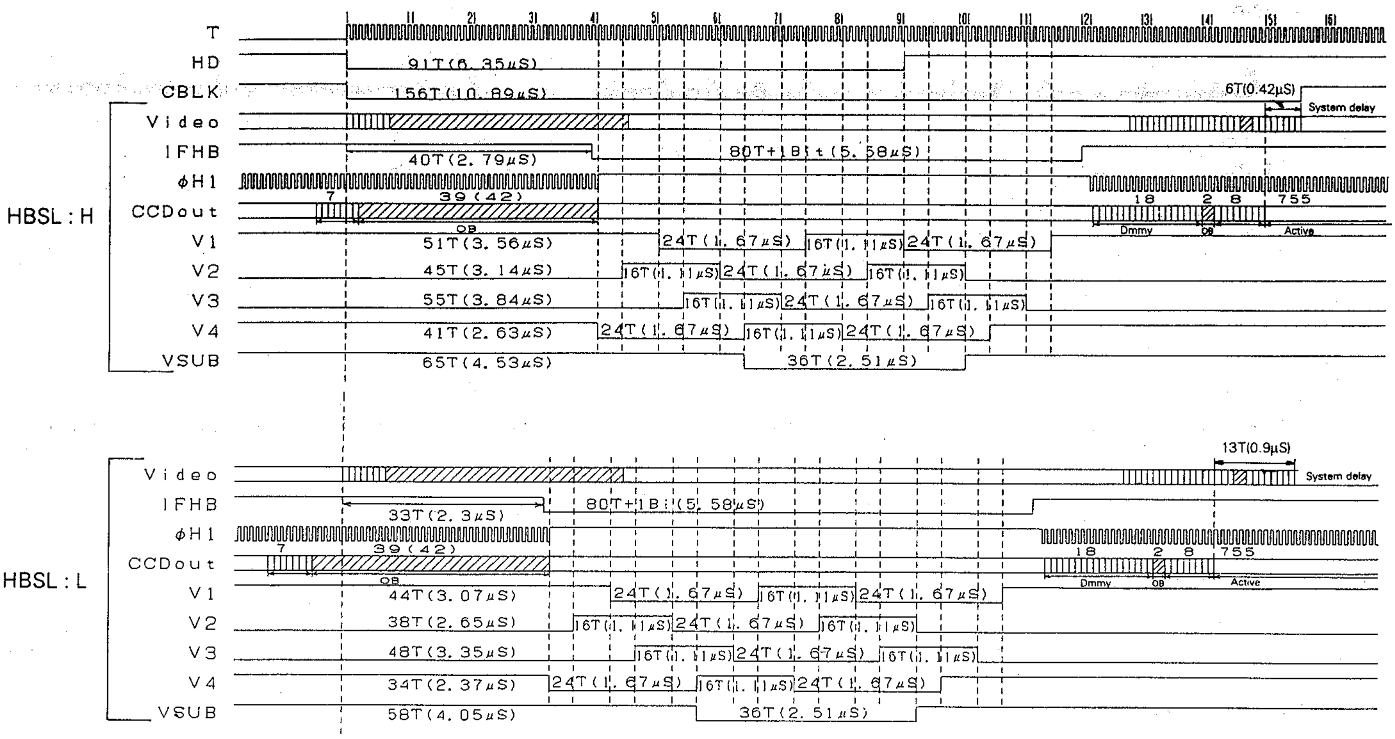

1H=908T=908Bit
1T=1Bit=70.4845815nS
13th line
14th line
T
HD
V1
V2
V3
V4
TG1
TG2
632T(44.54μS)
625T(44.05μS)
637T(44.89μS)
620T(43.7μS)
577T(40.6μS)
38T(2.67μS)
35T(2.46μS)
78T(5.49μS)
68T(4.79μS)

2nd field


325th line
326th line
T
HD
V1
V2
V3
V4
TG1
TG2
632T(44.54μS)
625T(44.05μS)
637T(44.89μS)
620T(43.7μS)
577T(40.6μS)
38T(2.67μS)
35T(2.46μS)
78T(5.49μS)
68T(4.79μS)

[NTSC] 2/3" CCD H-TIMING

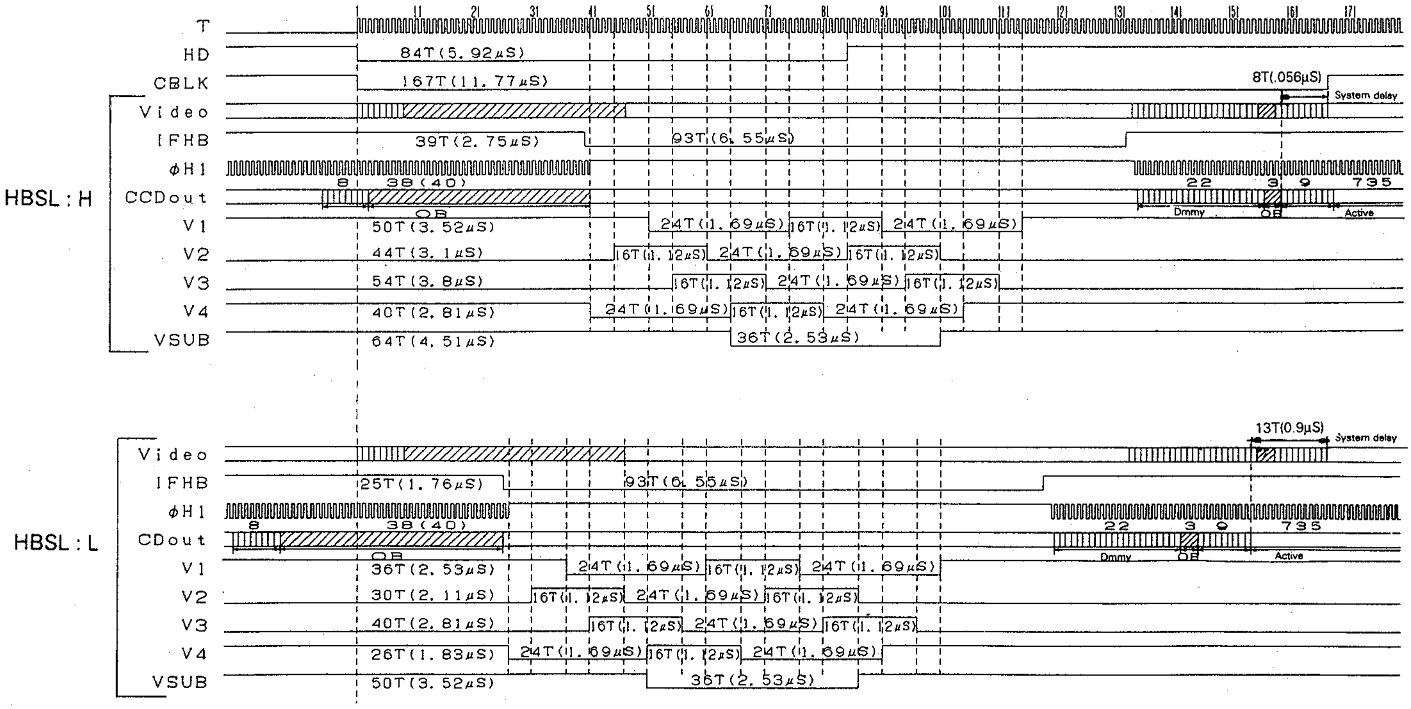
1H=910T=910Bit
1T=1Bit=69.84127871nS



T
HD
CBLK
Video
IFHB
φH1
CCDout
V1
V2
V3
V4
VSUB
HBSL : H
HBSL : L
91T(6.35μS)
156T(10.89μS)
6T(0.42μS)
System delay
40T(2.79μS)
80T+1Bit(5.58μS)
7
39(42)
OB
18
2
8
755
Dmmy
OB
Active
51T(3.56μS)
45T(3.14μS)
55T(3.84μS)
41T(2.63μS)
65T(4.53μS)
24T(1.67μS)
16T(1.11μS)
36T(2.51μS)
13T(0.9μS)
33T(2.3μS)
80T+1Bit(5.58μS)
44T(3.07μS)
38T(2.65μS)
48T(3.35μS)
34T(2.37μS)
58T(4.05μS)

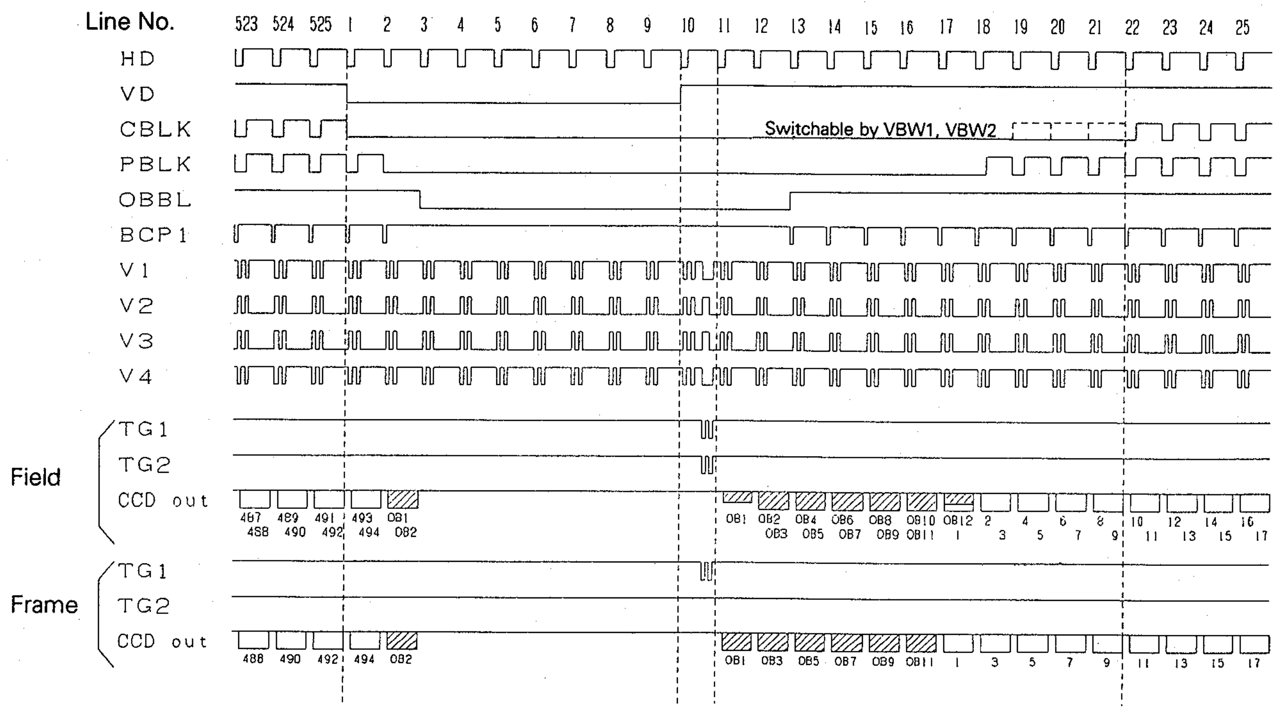
[PAL] 2/3" CCD H-TIMING

1H=908T=908Bit
1T=1Bit=70.4845815nS

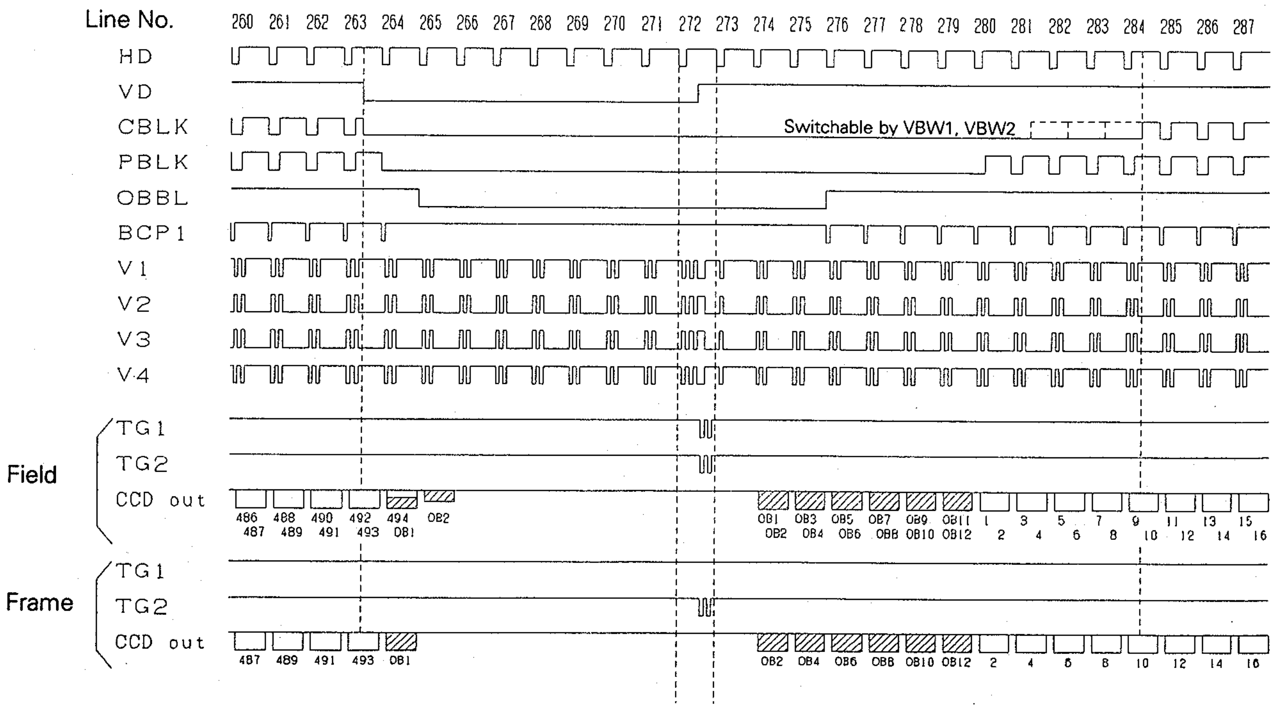


T
HD
CBLK
Video
IFHB
φH1
CCDout
V1
V2
V3
V4
VSUB
HBSL : H
HBSL : L
CDout
84T(5.92μS)
167T(11.77μS)
8T(.056μS)
System delay
39T(2.75μS)
93T(6.55μS)
8
38(40)
OB
22
3
9
735
Dmmy
OB
Active
50T(3.52μS)
44T(3.1μS)
54T(3.8μS)
40T(2.81μS)
64T(4.51μS)
24T(1.69μS)
16T(1.12μS)
36T(2.53μS)
13T(0.9μS)
25T(1.76μS)
36T(2.53μS)
30T(2.11μS)
40T(2.81μS)
26T(1.83μS)
50T(3.52μS)

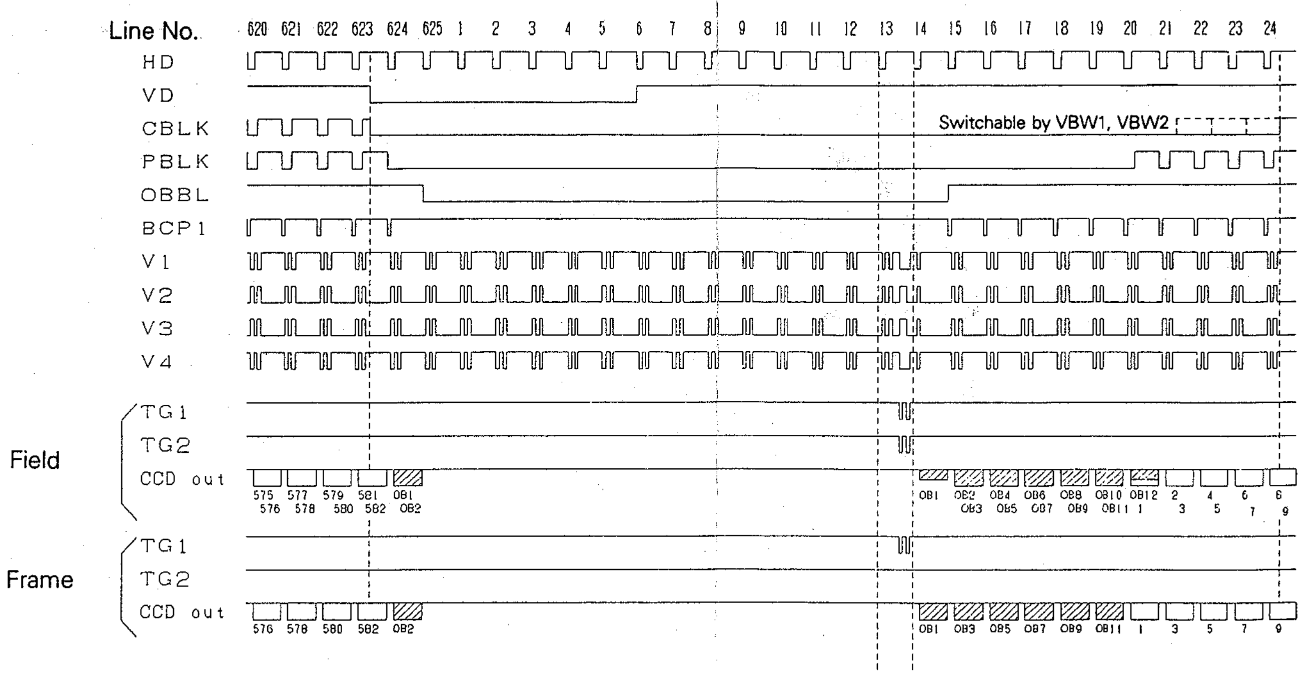
[NTSC] 2/3" CCD V-TIMING (1st field)


Line No.
523 524 525 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
Frame
TG1
TG2
CCD out
Switchable by VBW1, VBW2

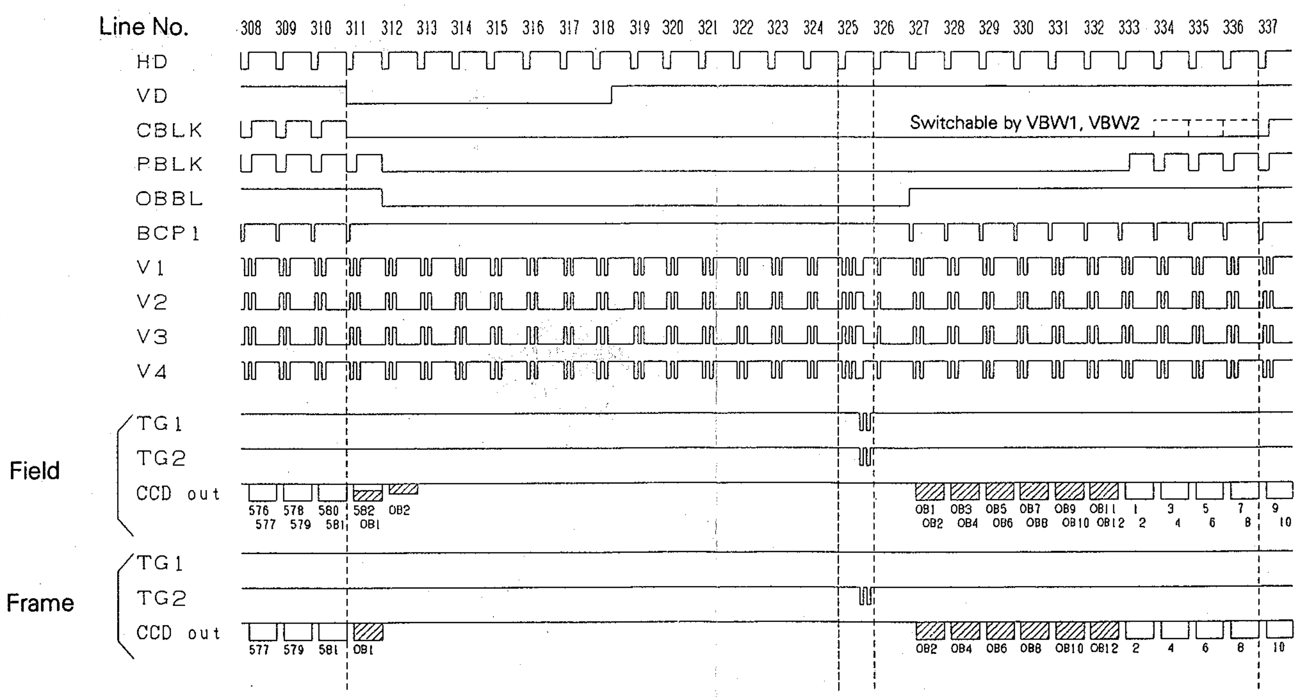
[NTSC] 2/3" CCD V-TIMING (2nd field)


Line No.
260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
Frame
TG1
TG2
CCD out
Switchable by VBW1, VBW2

[PAL] 2/3" CCD V-TIMING (1st field)

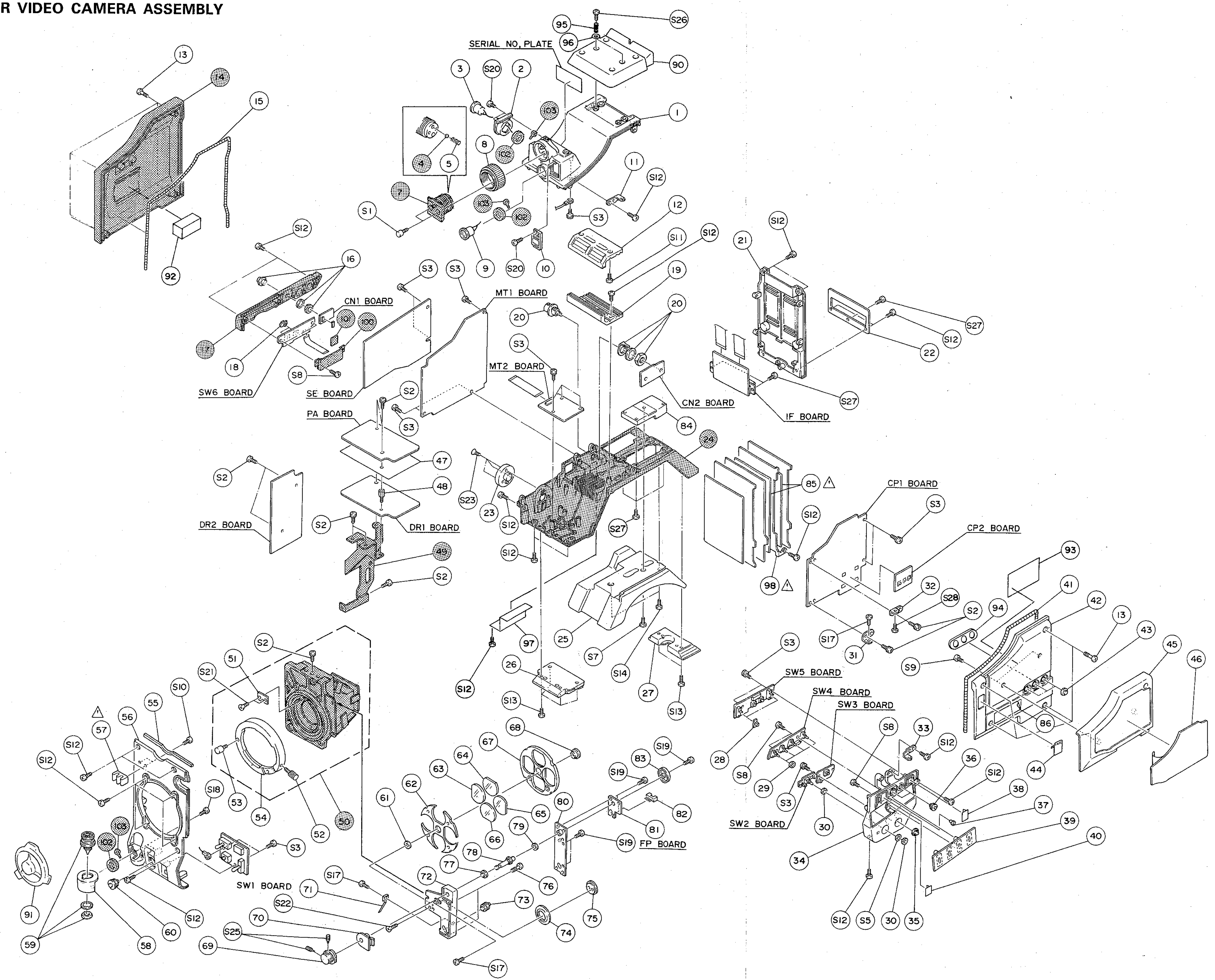

Line No.
620 621 622 623 624 625 1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
Frame
TG1
TG2
CCD out
Switchable by VBW1, VBW2

[PAL] 2/3" CCD V-TIMING (2nd field)


Line No.
308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337
HD
VD
CBLK
PBLK
OBBL
BCP1
V1
V2
V3
V4
Field
TG1
TG2
CCD out
Frame
TG1
TG2
CCD out
Switchable by VBW1, VBW2

SECTION 5
EXPLODED VIEWS AND PARTS LIST

5.1 COLOR VIDEO CAMERA ASSEMBLY


SERIAL NO. PLATE
CN1 BOARD
MT1 BOARD
MT2 BOARD
SW6 BOARD
SE BOARD
PA BOARD
DR1 BOARD
DR2 BOARD
CN2 BOARD
IF BOARD
CP1 BOARD
CP2 BOARD
SW5 BOARD
SW4 BOARD
SW3 BOARD
SW2 BOARD
SW1 BOARD
FP BOARD
S1
S2
S3
S5
S7
S8
S9
S10
S11
S12
S13
S14
S17
S18
S19
S20
S21
S22
S23
S25
S26
S27
S28
1
2
3
4
5
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
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38
39
40
41
42
43
44
45
46
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Note: • Replacing marked ⚠ parts, be sure to use parts specified for safety purposes.

• For part number of Flat cables, refer to the OVERALL WIRINGS on page 6-25.

• Parts in the red box (▨) are different from the KY-27.

- **Camera head assembly parts list** M 1

M 1 M M ☐☐☐☐

Symbol No.	Part No.	Part Name	Description
4	SC40465-045	STEEL BALL	
7	SC31861-001	VF BASE	
14	SC10154-081	SIDE COVER (L)	
17	SC20474-003	CN COVER	
24	SC10146-003	BOTTOM FRAME	
49	SC31486-002	BRACKET	
50	SCM0884-N0A	OP BLOCK ASS'Y	for U ver.
50	SCM0884-P0A	OP BLOCK ASS'Y	for E ver.
100	SC45553-001	SHIELD PLATE	
101	SSV1568-205	SPACER	
102	SCV2631-001	FERRITE CORE	
103	SCV0518-009	PLATE	

SECTION 6
ELECTRICAL PARTS LIST

SAFETY PRECAUTION:

Parts identified by the ⚠ symbol are critical for safety. Replace only with specified parts numbers. For maximum reliability and performance, all other replacement parts should be identical to those specified.

NOTE:

- Parts not denoted by parts numbers are not supplied by JVC.
- Abbreviations in this list are as follows:

RESISTORS

In the "Description" column:

All resistance values are in ohms (Ω).
K expresses kilo-ohm (1 000 ohms, kΩ).
M expresses mega-ohm (10^6 ohms, MΩ).

In the "Parts Name" column:

COMP. RESISTOR : Composition Resistor
U.F. RESISTOR : Non-inflammable Resistor
O.M.F. RESISTOR : Oxide Metalized Film Resistor
FUSI. RESISTOR : Fusible Resistor
M.P. RESISTOR : Metal Plate Resistor
M.G. RESISTOR : Metal Graze Resistor
M.F. RESISTOR : Metal Film Resistor
W.W. RESISTOR : Wire Wound Resistor

CAPACITORS

In the "Description" column:

All capacitance values are in microfarad (μF) unless otherwise indicated.
P expresses picofarad (10^{-12} farad, pF).

In the "Parts Name" column:

TRIM. CAPACITOR : Trimmer Capacitor
CER. CAPACITOR : Ceramic Capacitor
E. CAPACITOR : Electrolytic Capacitor
TAN. CAPACITOR : Tantalum Capacitor
MPP CAPACITOR : Metalized Polypropylene Capacitor
O.F. CAPACITOR : Oil Film Capacitor
MPF CAPACITOR : Metalized Polyfilm Capacitor
F.M. CAPACITOR : Film Mica Capacitor
P.P. CAPACITOR : Polypropylene Capacitor
P.S. CAPACITOR : Polystyrene Capacitor

Note: In the "Description" column of the parts list, (U) means the parts for the U version while (E) is for the E Version.

Symbol No.	Part No.	Part Name	Description	
IC1	SCV1585-064	I.C.(M)	JVC (U)	← **for U version**
	SCV1585-067	I.C.(M)	JVC (E)	← **for E version**

6.1 DR1 BOARD ASSEMBLY LIST 05
〈SCK2448-01-N0A〉
〈SCK2448-01-P0A〉

05☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	JCS0028	I.C.(M)	JVC
IC2	UPD9438BGK-BE9	I.C.(M)	NEC
IC3	MC74HC04AF	I.C.(M)	MOTOROLA
IC4	TC7SU04F	I.C.(M)	TOSHIBA
IC5	TC7SU04F	I.C.(M)	TOSHIBA
IC6	NJM78L15UA	I.C.(M)	JRC
D1	MA335	DIODE	MATSUSHITA
D2	MA335	DIODE	MATSUSHITA
R1	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R2	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R3	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R4	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R5	NRSA02J-471	M.G.RESISTOR	470 1/10W
R6	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R7	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R8	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R9	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R10	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R11	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R12	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R13	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R14	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R16	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R17	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R18	NRSA02J-0R0	M.G.RESISTOR	0 1/10W(E)
R19	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R20	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R21	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R26	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R27	NRSA02J-271	M.G.RESISTOR	270 1/10W
R28	NRSA02J-221	M.G.RESISTOR	220 1/10W
R29	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R30	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R31	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R32	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R33	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R34	NRSA02J-220	M.G.RESISTOR	22 1/10W
R35	NRSA02J-101	M.G.RESISTOR	100 1/10W
R36	NRSA02J-101	M.G.RESISTOR	100 1/10W
R37	NRSA02J-220	M.G.RESISTOR	22 1/10W
R38	NRSA02J-220	M.G.RESISTOR	22 1/10W
R39	NRSA02J-820	M.G.RESISTOR	82 1/10W
R40	NRSA02J-220	M.G.RESISTOR	22 1/10W
R42	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R44	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R45	NRSA02J-0R0	M.G.RESISTOR	0 1/10W(E)
R46	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R47	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R48	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R49	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
VR1	NVP1416-203	TRIM.RESISTOR	20K VSUB B

Symbol No.	Part No.	Part Name	Description
VR2	NVP1416-203	TRIM.RESISTOR	20K VSUB G
VR3	NVP1416-203	TRIM.RESISTOR	20K VSUB R
VR5	NVP1416-102	TRIM.RESISTOR	1K HP
VR6	NVP1416-102	TRIM.RESISTOR	1K CP
VR7	NVP1416-102	TRIM.RESISTOR	1K SHP
C1	NCB21EK-473	CER.CAPACITOR	0.047 25V
C2	NEH90JM-336	E.CAPACITOR	33 6.3V
C3	NEH90JM-336	E.CAPACITOR	33 6.3V
C4	NCB21EK-473	CER.CAPACITOR	0.047 25V
C5	NEA10JM-337	E.CAPACITOR	330 6.3V
C6	NCB21EK-473	CER.CAPACITOR	0.047 25V
C7	NCB21EK-473	CER.CAPACITOR	0.047 25V
C8	NCB21EK-473	CER.CAPACITOR	0.047 25V
C9	NCT03CH-100	CER.CAPACITOR	10P 50V
C10	NCT03CH-100	CER.CAPACITOR	10P 50V
C11	NCT03CH-220	CER.CAPACITOR	22P 50V
C12	NCB21EK-473	CER.CAPACITOR	0.047 25V
C13	NCB21EK-473	CER.CAPACITOR	0.047 25V
C15	NCB21EK-473	CER.CAPACITOR	0.047 25V
C16	NCT03CH-101	CER.CAPACITOR	100P 50V
C17	NCT03CH-101	CER.CAPACITOR	100P 50V
C18	NCB21EK-473	CER.CAPACITOR	0.047 25V
C19	NCB21EK-473	CER.CAPACITOR	0.047 25V
C20	NEF11CM-105	TAN.CAPACITOR	1.0 16V
C21	NCB21EK-473	CER.CAPACITOR	0.047 25V
C22	NCB21EK-473	CER.CAPACITOR	0.047 25V
C23	NEH91EM-475	E.CAPACITOR	4.7 25V
C24	NEH61CM-106	E.CAPACITOR	10 16V
C25	NEH90JM-336	E.CAPACITOR	33 6.3V
L1	SSV1330-150	COIL	15μH
L2	SSV1330-150	COIL	15μH
LC1	EXC-CET471U	EMI FILTER	
LC2	EXC-CET471U	EMI FILTER	
X1	CE41081-A0A	CRYSTAL	28MHz (U)
	CE41212-001	CRYSTAL	28MHz (E)
CN9	SCV1814-026	CONNECTOR	26-PIN
CN10	SCV1770-005	CONNECTOR	5-PIN
CN19	SCV1770-012	CONNECTOR	12-PIN
CN33	SCV1770-003	CONNECTOR	3-PIN
CN38	SCV1770-004	CONNECTOR	4-PIN
TP1	SCV1880-001	TEST POINT	

6.2 DR2 BOARD ASSEMBLY LIST 06

〈SCK2448-02-00A〉 06□□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	MC74HC04AF	I.C.(M)	MOTOROLA
IC2	MC74HC14AFL	I.C.(M)	MOTOROLA
IC3	TC7S32F	I.C.(M)	TOSHIBA
IC101	UPD16510GR	I.C.(M)	NEC
IC201	UPD16510GR	I.C.(M)	NEC
IC301	UPD16510GR	I.C.(M)	NEC
Q1	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q2	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q3	2SD874(QR)	TRANSISTOR	MATSUSHITA
Q4	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q101	MSC3930(B)	TRANSISTOR	MOTOROLA
Q102	MSC3930(B)	TRANSISTOR	MOTOROLA
Q103	MSC3930(B)	TRANSISTOR	MOTOROLA
Q104	2SA1462Y3Y4	TRANSISTOR	NEC
Q105	2SC3735(45)	TRANSISTOR	NEC
Q201	MSC3930(B)	TRANSISTOR	MOTOROLA
Q202	MSC3930(B)	TRANSISTOR	MOTOROLA
Q203	MSC3930(B)	TRANSISTOR	MOTOROLA
Q204	2SA1462Y3Y4	TRANSISTOR	NEC
Q205	2SC3735(45)	TRANSISTOR	NEC
Q301	MSC3930(B)	TRANSISTOR	MOTOROLA
Q302	MSC3930(B)	TRANSISTOR	MOTOROLA
Q303	MSC3930(B)	TRANSISTOR	MOTOROLA
Q304	2SA1462Y3Y4	TRANSISTOR	NEC
Q305	2SC3735(45)	TRANSISTOR	NEC
D2	MA142A	DIODE	MATSUSHITA
D3	MA742	DIODE	MATSUSHITA
D4	MA742	DIODE	MATSUSHITA
D5	MA742	DIODE	MATSUSHITA
D101	MA142WA	DIODE	MATSUSHITA
D102	MA742	DIODE	MATSUSHITA
D103	MA742	DIODE	MATSUSHITA
D104	MA142A	DIODE	MATSUSHITA
D201	MA142WA	DIODE	MATSUSHITA
D202	MA742	DIODE	MATSUSHITA
D203	MA742	DIODE	MATSUSHITA
D204	MA142WA	DIODE	MATSUSHITA
D301	MA142WA	DIODE	MATSUSHITA
D302	MA742	DIODE	MATSUSHITA
D303	MA742	DIODE	MATSUSHITA
R1	NRSA02J-822	M.G.RESISTOR	8.2K 1/10W
R2	NRSA02J-123	M.G.RESISTOR	12K 1/10W
R3	NRSA02J-100	M.G.RESISTOR	10 1/10W
R4	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R5	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R6	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R7	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R8	NRSA02J-182	M.G.RESISTOR	1.8K 1/10W
R9	NRSA02J-682	M.G.RESISTOR	6.8K 1/10W
R10	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R14	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R15	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R16	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R17	NRSA02J-221	M.G.RESISTOR	220 1/10W
R18	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R19	NRSA02J-4R7	M.G.RESISTOR	4.7 1/10W
R20	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R21	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R22	NRSA02J-4R7	M.G.RESISTOR	4.7 1/10W
R23	NRSA02J-4R7	M.G.RESISTOR	4.7 1/10W
R24	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R25	NRSA02J-680	M.G.RESISTOR	68 1/10W
R26	NRSA02J-561	M.G.RESISTOR	560 1/10W
R27	NRSA02J-680	M.G.RESISTOR	68 1/10W
R28	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R29	NRSA02J-220	M.G.RESISTOR	22 1/10W
R101	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R103	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R104	NRSA02J-154	M.G.RESISTOR	150K 1/10W
R105	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R106	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R107	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R108	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R109	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R110	NRSA02J-270	M.G.RESISTOR	27 1/10W
R111	NRSA02J-470	M.G.RESISTOR	47 1/10W
R112	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R201	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R203	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R204	NRSA02J-154	M.G.RESISTOR	150K 1/10W
R205	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R206	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R207	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R208	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R209	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R210	NRSA02J-270	M.G.RESISTOR	27 1/10W
R211	NRSA02J-470	M.G.RESISTOR	47 1/10W
R212	NRSA02J-822	M.G.RESISTOR	8.2K 1/10W
R213	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R214	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R215	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R301	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R303	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R304	NRSA02J-154	M.G.RESISTOR	150K 1/10W
R305	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R306	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R307	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R308	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R309	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R310	NRSA02J-270	M.G.RESISTOR	27 1/10W
R311	NRSA02J-470	M.G.RESISTOR	47 1/10W
VR1	NVP1415-203	TRIM.RESISTOR	20K EOO
C1	NEF11AM-225	TAN.CAPACITOR	2.2 10V
C2	NEH60JM-107	E.CAPACITOR	100 6.3V
C3	NEH60JM-107	E.CAPACITOR	100 6.3V
C4	NEA10JM-337	E.CAPACITOR	330 6.3V
C5	NEA10JM-337	E.CAPACITOR	330 6.3V
C6	NEH61CM-106	E.CAPACITOR	10 16V
C7	NCB21EK-473	CER.CAPACITOR	0.047 25V

[DR2]

Symbol No.	Part No.	Part Name	Description
C8	NCB21EK–473	CER.CAPACITOR	0.047 25V
C9	NCB21EK–473	CER.CAPACITOR	0.047 25V
C10	NCB21EK–473	CER.CAPACITOR	0.047 25V
C11	NEH61CM–106NZ	E.CAPACITOR	10 16V(U)
	NEH61CM–106	E.CAPACITOR	10 16V(E)
C12	NEF11DM–225	TAN.CAPACITOR	2.2 20V
C13	NEH61CM–476	E.CAPACITOR	47 16V
C14	NEA11AM–227	E.CAPACITOR	220 10V
C15	NCB21EK–473	CER.CAPACITOR	0.047 25V
C17	NCB21EK–473	CER.CAPACITOR	0.047 25V
C18	NEH90JM–336	E.CAPACITOR	33 6.3V
C19	NCT03CH–5R0	CER.CAPACITOR	5.0P 50V
C20	NCT03CH–5R0	CER.CAPACITOR	5.0P 50V
C21	NCB21EK–473	CER.CAPACITOR	0.047 25V
C22	NEF10GM–106	TAN.CAPACITOR	10 4V
C101	NCB21EK–473	CER.CAPACITOR	0.047 25V
C102	NCB21EK–473	CER.CAPACITOR	0.047 25V
C103	NCB21EK–473	CER.CAPACITOR	0.047 25V
C104	NCB21EK–473	CER.CAPACITOR	0.047 25V
C105	NCB21EK–473	CER.CAPACITOR	0.047 25V
C106	NCB21EK–473	CER.CAPACITOR	0.047 25V
C107	NEH91EM–475	E.CAPACITOR	4.7 25V
C108	NCB21EK–473	CER.CAPACITOR	0.047 25V
C109	NCT03CH–5R0	CER.CAPACITOR	5.0P 50V
C110	NCT03CH–100	CER.CAPACITOR	10P 50V
C111	NCB21HK–103	CER.CAPACITOR	0.010 50V
C113	NCB21EK–473	CER.CAPACITOR	0.047 25V
C201	NCB21EK–473	CER.CAPACITOR	0.047 25V
C202	NCB21EK–473	CER.CAPACITOR	0.047 25V
C203	NCB21EK–473	CER.CAPACITOR	0.047 25V
C204	NCB21EK–473	CER.CAPACITOR	0.047 25V
C205	NCB21EK–473	CER.CAPACITOR	0.047 25V
C206	NCB21EK–473	CER.CAPACITOR	0.047 25V
C207	NEH91EM–475	E.CAPACITOR	4.7 25V
C208	NCB21EK–473	CER.CAPACITOR	0.047 25V
C209	NCT03CH–5R0	CER.CAPACITOR	5.0P 50V
C210	NCT03CH–100	CER.CAPACITOR	10P 50V
C211	NCB21HK–103	CER.CAPACITOR	0.010 50V
C212	NEF11CM–105	TAN.CAPACITOR	1.0 16V
C213	NCB21EK–473	CER.CAPACITOR	0.047 25V
C301	NCB21EK–473	CER.CAPACITOR	0.047 25V
C302	NCB21EK–473	CER.CAPACITOR	0.047 25V
C303	NCB21EK–473	CER.CAPACITOR	0.047 25V
C304	NCB21EK–473	CER.CAPACITOR	0.047 25V
C305	NCB21EK–473	CER.CAPACITOR	0.047 25V
C306	NCB21EK–473	CER.CAPACITOR	0.047 25V
C307	NEH91EM–475	E.CAPACITOR	4.7 25V
C308	NCB21EK–473	CER.CAPACITOR	0.047 25V
C309	NCT03CH–5R0	CER.CAPACITOR	5.0P 50V
C310	NCT03CH–100	CER.CAPACITOR	10P 50V
C311	NCB21HK–103	CER.CAPACITOR	0.010 50V
C312	NEH61CM–106	E.CAPACITOR	10 16V
C313	NEH61CM–106	E.CAPACITOR	10 16V
CN6	SCV2374–018	CONNECTOR	18–PIN
CN7	SCV2374–018	CONNECTOR	18–PIN
CN8	SCV2374–018	CONNECTOR	18–PIN
CN9	SCV1815–026X	CONNECTOR	26–PIN

6.3 ISB BOARD ASSEMBLY LIST 01

⟨SCK2448-03-00A⟩

01☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
SK1	SCV1217–010	I.C.SOCKET	
IC2	MC74HC04AF	I.C.(M)	MOTOROLA
Q1	MSC3930(B)	TRANSISTOR	MOTOROLA
Q2	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q3	3SK157	F.E.T.	NEC
Q4	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q5	MSC3930(B)	TRANSISTOR	MOTOROLA
Q6	3SK157	F.E.T.	NEC
Q7	2SA1622(M6)	TRANSISTOR	SANYO
Q8	MSC3930(B)	TRANSISTOR	MOTOROLA
R1	NRSA02J–220	M.G.RESISTOR	22 1/10W
R2	NRSA02J–332	M.G.RESISTOR	3.3K 1/10W
R4	NRSA02J–224	M.G.RESISTOR	220K 1/10W
R5	NRSA02J–332	M.G.RESISTOR	3.3K 1/10W
R6	NRSA02J–472	M.G.RESISTOR	4.7K 1/10W
R7	NRSA02J–222	M.G.RESISTOR	2.2K 1/10W
R8	NRSA02J–273	M.G.RESISTOR	27K 1/10W
R9	NRSA02J–104	M.G.RESISTOR	100K 1/10W
R10	NRSA02J–472	M.G.RESISTOR	4.7K 1/10W
R11	NRSA02J–101	M.G.RESISTOR	100 1/10W
R12	NRSA02J–102	M.G.RESISTOR	1.0K 1/10W
R13	NRSA02J–472	M.G.RESISTOR	4.7K 1/10W
R14	NRSA02J–221	M.G.RESISTOR	220 1/10W
R15	NRSA02J–102	M.G.RESISTOR	1.0K 1/10W
R16	NRSA02J–0R0	M.G.RESISTOR	0 1/10W
R17	NRSA02J–472	M.G.RESISTOR	4.7K 1/10W
R18	NRSA02J–221	M.G.RESISTOR	220 1/10W
R19	NRSA02J–152	M.G.RESISTOR	1.5K 1/10W
R24	NRSA02J–100	M.G.RESISTOR	10 1/10W
R25	NRSA02J–101	M.G.RESISTOR	100 1/10W
R26	NRSA02J–100	M.G.RESISTOR	10 1/10W
C1	NEF11VM–335	TAN.CAPACITOR	3.3 35V
C2	NCB21EK–473	CER.CAPACITOR	0.047 25V
C3	NCB21EK–473	CER.CAPACITOR	0.047 25V
C4	NEF11VM–105	TAN.CAPACITOR	1.0 35V
C5	NCB21EK–473	CER.CAPACITOR	0.047 25V
C6	NCT03CH–101	CER.CAPACITOR	100P 50V
C7	NEF11AM–156	TAN.CAPACITOR	15 10V
C8	NCB21EK–473	CER.CAPACITOR	0.047 25V
C9	NCT03CH–330	CER.CAPACITOR	33P 50V
C10	NEF11AM–156	TAN.CAPACITOR	15 10V
C12	NEF11AM–156	TAN.CAPACITOR	15 10V
CN3	SCV1770–003	CONNECTOR	3–PIN
CN6	SCV2374–018	CONNECTOR	18–PIN

6.4 ISG BOARD ASSEMBLY LIST 0 2
⟨SCK2448-04-00A⟩ 0 2 □□□□□□

Symbol No.	Part No.	Part Name	Description
SK1	SCV1217-010	I.C.SOCKET	
IC2	MC74HC04AF	I.C.(M)	MOTOROLA
Q1	MSC3930(B)	TRANSISTOR	MOTOROLA
Q2	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q3	3SK157	F.E.T.	NEC
Q4	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q5	MSC3930(B)	TRANSISTOR	MOTOROLA
Q6	3SK157	F.E.T.	NEC
Q7	2SA1622(M6)	TRANSISTOR	SANYO
Q8	MSC3930(B)	TRANSISTOR	MOTOROLA
Q9	3SK157	F.E.T.	NEC
Q10	2SA1622(M6)	TRANSISTOR	SANYO
Q11	MSC3930(B)	TRANSISTOR	MOTOROLA
R1	NRSA02J-220	M.G.RESISTOR	22 1/10W
R2	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R4	NRSA02J-224	M.G.RESISTOR	220K 1/10W
R5	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R6	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R7	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R8	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R9	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R10	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R11	NRSA02J-101	M.G.RESISTOR	100 1/10W
R12	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R13	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R14	NRSA02J-221	M.G.RESISTOR	220 1/10W
R15	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R16	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R17	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R18	NRSA02J-221	M.G.RESISTOR	220 1/10W
R19	NRSA02J-152	M.G.RESISTOR	1.5K 1/10W
R20	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R21	NRSA02J-221	M.G.RESISTOR	220 1/10W
R22	NRSA02J-152	M.G.RESISTOR	1.5K 1/10W
R23	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R24	NRSA02J-100	M.G.RESISTOR	10 1/10W
R25	NRSA02J-101	M.G.RESISTOR	100 1/10W
R26	NRSA02J-100	M.G.RESISTOR	10 1/10W
C1	NEF11VM-335	TAN.CAPACITOR	3.3 35V
C2	NCB21EK-473	CER.CAPACITOR	0.047 25V
C3	NCB21EK-473	CER.CAPACITOR	0.047 25V
C4	NEF11VM-105	TAN.CAPACITOR	1.0 35V
C5	NCB21EK-473	CER.CAPACITOR	0.047 25V
C6	NCT03CH-101	CER.CAPACITOR	100P 50V
C7	NEF11AM-156	TAN.CAPACITOR	15 10V
C8	NCB21EK-473	CER.CAPACITOR	0.047 25V
C9	NCT03CH-330	CER.CAPACITOR	33P 50V
C10	NEF11AM-156	TAN.CAPACITOR	15 10V
C11	NCT03CH-330	CER.CAPACITOR	33P 50V
C12	NEF11AM-156	TAN.CAPACITOR	15 10V

Symbol No.	Part No.	Part Name	Description
CN4	SCV1770-003	CONNECTOR	3-PIN
CN7	SCV2374-018	CONNECTOR	18-PIN

6.5 ISR BOARD ASSEMBLY LIST 0 3
⟨SCK2448-05-00A⟩

0 3 ☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
SK1	SCV1217-010	I.C.SOCKET	
IC2	MC74HC04AF	I.C.(M)	MOTOROLA
Q1	MSC3930(B)	TRANSISTOR	MOTOROLA
Q2	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q3	3SK157	F.E.T.	NEC
Q4	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q5	MSC3930(B)	TRANSISTOR	MOTOROLA
Q6	3SK157	F.E.T.	NEC
Q7	2SA1622(M6)	TRANSISTOR	SANYO
Q8	MSC3930(B)	TRANSISTOR	MOTOROLA
R1	NRSA02J-220	M.G.RESISTOR	22 1/10W
R2	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R4	NRSA02J-224	M.G.RESISTOR	220K 1/10W
R5	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R6	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R7	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R8	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R9	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R10	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R11	NRSA02J-101	M.G.RESISTOR	100 1/10W
R12	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R13	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R14	NRSA02J-221	M.G.RESISTOR	220 1/10W
R15	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R16	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R17	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R18	NRSA02J-221	M.G.RESISTOR	220 1/10W
R19	NRSA02J-152	M.G.RESISTOR	1.5K 1/10W
R24	NRSA02J-100	M.G.RESISTOR	10 1/10W
R25	NRSA02J-101	M.G.RESISTOR	100 1/10W
R26	NRSA02J-100	M.G.RESISTOR	10 1/10W
C1	NEF11VM-335	TAN.CAPACITOR	3.3 35V
C2	NCB21EK-473	CER.CAPACITOR	0.047 25V
C3	NCB21EK-473	CER.CAPACITOR	0.047 25V
C4	NEF11VM-105	TAN.CAPACITOR	1.0 35V
C5	NCB21EK-473	CER.CAPACITOR	0.047 25V
C6	NCT03CH-101	CER.CAPACITOR	100P 50V
C7	NEF11AM-156	TAN.CAPACITOR	15 10V
C8	NCB21EK-473	CER.CAPACITOR	0.047 25V
C9	NCT03CH-330	CER.CAPACITOR	33P 50V
C10	NEF11AM-156	TAN.CAPACITOR	15 10V
C12	NEF11AM-156	TAN.CAPACITOR	15 10V
CN5	SCV1770-003	CONNECTOR	3-PIN
CN8	SCV2374-018	CONNECTOR	18-PIN

6.6 PA BOARD ASSEMBLY LIST 0 4
⟨SCK2448-06-00A⟩

0 4 ☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	NJM062M	I.C.(M)	JRC
IC2	NJM062M	I.C.(M)	JRC
IC3	NJM062M	I.C.(M)	JRC
IC4	MC74HC4053F	I.C.(M)	MOTOROLA
IC5	TC4S69F	I.C.(M)	TOSHIBA
IC6	TC4S69F	I.C.(M)	TOSHIBA
Q1	2SK662(QR)	F.E.T.	MATSUSHITA
Q2	2SC3932(ST)	TRANSISTOR	MATSUSHITA
Q3	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q4	2SK662(QR)	F.E.T.	MATSUSHITA
Q5	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q6	2SK662(QR)	F.E.T.	MATSUSHITA
Q7	2SC3932(ST)	TRANSISTOR	MATSUSHITA
Q8	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q9	2SK662(QR)	F.E.T.	MATSUSHITA
Q10	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q11	2SK662(QR)	F.E.T.	MATSUSHITA
Q12	2SC3932(ST)	TRANSISTOR	MATSUSHITA
Q13	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q14	2SK662(QR)	F.E.T.	MATSUSHITA
Q15	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q16	2SK662(QR)	F.E.T.	MATSUSHITA
Q17	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q18	2SK662(QR)	F.E.T.	MATSUSHITA
Q19	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q20	2SK662(QR)	F.E.T.	MATSUSHITA
Q21	2SC4562(QR)	TRANSISTOR	MATSUSHITA
R2	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R3	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R4	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R5	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R6	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R7	NRSA02J-681	M.G.RESISTOR	680 1/10W
R8	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R9	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R10	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R11	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R12	NRSA02J-101	M.G.RESISTOR	100 1/10W
R13	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R14	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R15	NRSA02J-564	M.G.RESISTOR	560K 1/10W
R16	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R18	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R19	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R20	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R21	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R22	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R23	NRSA02J-822	M.G.RESISTOR	8.2K 1/10W
R24	NRSA02J-681	M.G.RESISTOR	680 1/10W
R25	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R26	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R27	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R28	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R29	NRSA02J-101	M.G.RESISTOR	100 1/10W

Symbol No.	Part No.	Part Name	Description
R30	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R32	NRSA02J-564	M.G.RESISTOR	560K 1/10W
R33	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R35	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R36	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R37	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R38	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R39	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R40	NRSA02J-822	M.G.RESISTOR	8.2K 1/10W
R41	NRSA02J-681	M.G.RESISTOR	680 1/10W
R42	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R43	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R44	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R45	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R46	NRSA02J-101	M.G.RESISTOR	100 1/10W
R47	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R48	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R49	NRSA02J-564	M.G.RESISTOR	560K 1/10W
R50	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R51	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R52	NRSA02J-101	M.G.RESISTOR	100 1/10W
R53	NRSA02J-101	M.G.RESISTOR	100 1/10W
R54	NRSA02J-101	M.G.RESISTOR	100 1/10W
R55	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R56	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R57	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R58	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R59	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R60	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R61	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R62	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R63	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R64	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R65	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R66	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R67	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
VR1	NVP1416-503	TRIM.RESISTOR	50K B BLACK
VR2	NVP1416-503	TRIM.RESISTOR	50K G BLACK
VR3	NVP1416-503	TRIM.RESISTOR	50K R BLACK
C1	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C2	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C3	NCT03CH-220	CER.CAPACITOR	22P 50V
C4	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C5	NEN11HM-105	NP.CAPACITOR	1.0 50V
C6	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C7	NEN11HM-105	NP.CAPACITOR	1.0 50V
C8	NCT03CH-470	CER.CAPACITOR	47P 50V
C9	NCT03CH-680	CER.CAPACITOR	68P 50V
C10	NEA11AM-336	E.CAPACITOR	33 10V
C11	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C12	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C13	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C14	NCT03CH-220	CER.CAPACITOR	22P 50V
C15	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C16	NEN11HM-105	NP.CAPACITOR	1.0 50V
C17	NCF21EZ-104	CER.CAPACITOR	0.10 25V

Symbol No.	Part No.	Part Name	Description
C18	NEN11HM-105	NP.CAPACITOR	1.0 50V
C19	NCT03CH-470	CER.CAPACITOR	47P 50V
C20	NCT03CH-680	CER.CAPACITOR	68P 50V
C21	NEA11AM-336	E.CAPACITOR	33 10V
C22	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C23	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C24	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C25	NCT03CH-220	CER.CAPACITOR	22P 50V
C26	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C27	NEN11HM-105	NP.CAPACITOR	1.0 50V
C28	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C29	NEN11HM-105	NP.CAPACITOR	1.0 50V
C30	NCT03CH-470	CER.CAPACITOR	47P 50V
C31	NCT03CH-680	CER.CAPACITOR	68P 50V
C32	NEA11AM-336	E.CAPACITOR	33 10V
C33	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C34	NEA10JM-337	E.CAPACITOR	330 6.3V
C35	NEA10JM-107	E.CAPACITOR	100 6.3V
C36	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C37	NEA10JM-107	E.CAPACITOR	100 6.3V
C38	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C39	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C40	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C41	NCF21EZ-104	CER.CAPACITOR	0.10 25V
LC1	SCV1859-001	LOWPASS FILTER	10MHz
LC2	SCV1859-001	LOWPASS FILTER	10MHz
LC3	SCV1859-001	LOWPASS FILTER	10MHz
LC4	SCV2366-001	CRYSTAL	7.16MHz
LC5	SCV2366-001	CRYSTAL	7.16MHz
LC6	SCV2366-001	CRYSTAL	7.16MHz
CN3	SCV1770-003	CONNECTOR	3-PIN
CN4	SCV1770-003	CONNECTOR	3-PIN
CN5	SCV1770-003	CONNECTOR	3-PIN
CN21	SCV1770-010	CONNECTOR	10-PIN
CN41	SCV1770-004	CONNECTOR	4-PIN

6.7 PR1 BOARD ASSEMBLY LIST 07
〈SCK2307-03-02A〉

07□□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	NJM062M	I.C.(M)	JRC
IC2	NJM062M	I.C.(M)	JRC
IC3	RC1496M	I.C.(M)	RAYTHEON
IC4	NJM062M	I.C.(M)	JRC
IC5	NJM062M	I.C.(M)	JRC
IC6	NJM062M	I.C.(M)	JRC
IC7	RC1496M	I.C.(M)	RAYTHEON
IC8	NJM062M	I.C.(M)	JRC
IC9	NJM062M	I.C.(M)	JRC
IC10	NJM062M	I.C.(M)	JRC
IC11	RC1496M	I.C.(M)	RAYTHEON
IC12	NJM062M	I.C.(M)	JRC
IC13	RC2902M	I.C.(M)	RAYTHEON
IC14	MB88342PF	I.C.(M)	FUJITSU
IC15	TC4S69F	I.C.(M)	TOSHIBA
IC16	NJM062M	I.C.(M)	JRC
Q2	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q3	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q4	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q5	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q6	2SK662(QR)	F.E.T.	MATSUSHITA
Q7	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q8	CXD7500M	F.E.T.	SONY
Q9	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q11	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q12	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q13	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q14	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q15	2SK662(QR)	F.E.T.	MATSUSHITA
Q16	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q17	CXD7500M	F.E.T.	SONY
Q18	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q20	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q21	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q22	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q23	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q24	2SK662(QR)	F.E.T.	MATSUSHITA
Q25	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q26	CXD7500M	F.E.T.	SONY
Q27	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q28	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q29	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q30	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q31	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q32	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q33	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q34	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q35	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q36	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q37	2SK662(QR)	F.E.T.	MATSUSHITA
Q38	2SK662(QR)	F.E.T.	MATSUSHITA
Q39	2SK662(QR)	F.E.T.	MATSUSHITA
Q40	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q41	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q42	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q43	2SA1622(M6)	TRANSISTOR	SANYO
Q44	2SA1622(M6)	TRANSISTOR	SANYO
Q45	2SA1622(M6)	TRANSISTOR	SANYO
Q46	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
D1	MA142A	DIODE	MATSUSHITA
D2	MA142A	DIODE	MATSUSHITA
D3	MA142A	DIODE	MATSUSHITA
R1	NRSA02J-330	M.G.RESISTOR	33 1/10W
R2	NRSA02J-471	M.G.RESISTOR	470 1/10W
R4	NRSA02J-101	M.G.RESISTOR	100 1/10W
R5	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R6	NRSA02J-101	M.G.RESISTOR	100 1/10W
R7	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R8	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R9	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R10	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R11	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R12	NRSA02J-471	M.G.RESISTOR	470 1/10W
R13	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R14	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R15	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R16	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R17	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R19	NRVA02D-3301	M.F.RESISTOR	3.30K 1/10W
R20	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R21	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R22	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R23	NRSA02J-393	M.G.RESISTOR	39K 1/10W
R24	NRSA02J-101	M.G.RESISTOR	100 1/10W
R25	NRSA02J-101	M.G.RESISTOR	100 1/10W
R26	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R27	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R28	NRSA02J-221	M.G.RESISTOR	220 1/10W
R29	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R30	NRSA02J-823	M.G.RESISTOR	82K 1/10W
R31	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R32	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R33	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R34	NRSA02J-101	M.G.RESISTOR	100 1/10W
R35	NRVA02D-3302	M.F.RESISTOR	33.0K 1/10W
R36	NRVA02D-1802	M.F.RESISTOR	18.0K 1/10W
R39	NRSA02J-101	M.G.RESISTOR	100 1/10W
R40	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R41	NRSA02J-101	M.G.RESISTOR	100 1/10W
R42	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R43	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R44	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R45	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R46	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R47	NRSA02J-471	M.G.RESISTOR	470 1/10W
R48	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R49	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R50	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R51	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R52	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R54	NRVA02D-3301	M.F.RESISTOR	3.30K 1/10W

Symbol No.	Part No.	Part Name	Description	
R55	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R56	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R57	NRSA02J-473	M.G.RESISTOR	47K	1/10W
R58	NRSA02J-393	M.G.RESISTOR	39K	1/10W
R61	NRSA02J-101	M.G.RESISTOR	100	1/10W
R62	NRSA02J-101	M.G.RESISTOR	100	1/10W
R63	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W
R64	NRSA02J-272	M.G.RESISTOR	2.7K	1/10W
R65	NRSA02J-221	M.G.RESISTOR	220	1/10W
R66	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R67	NRSA02J-272	M.G.RESISTOR	2.7K	1/10W
R68	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R69	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R70	NRVA02D-1802	M.F.RESISTOR	18.0K	1/10W
R71	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R74	NRSA02J-101	M.G.RESISTOR	100	1/10W
R75	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R76	NRSA02J-101	M.G.RESISTOR	100	1/10W
R77	NRSA02J-122	M.G.RESISTOR	1.2K	1/10W
R78	NRSA02J-182	M.G.RESISTOR	1.8K	1/10W
R79	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R80	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R81	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R82	NRSA02J-471	M.G.RESISTOR	470	1/10W
R83	NRSA02J-333	M.G.RESISTOR	33K	1/10W
R84	NRSA02J-183	M.G.RESISTOR	18K	1/10W
R85	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R86	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W
R87	NRSA02J-105	M.G.RESISTOR	1.0M	1/10W
R89	NRVA02D-3301	M.F.RESISTOR	3.30K	1/10W
R90	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R91	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R92	NRSA02J-473	M.G.RESISTOR	47K	1/10W
R93	NRSA02J-393	M.G.RESISTOR	39K	1/10W
R94	NRSA02J-101	M.G.RESISTOR	100	1/10W
R95	NRSA02J-101	M.G.RESISTOR	100	1/10W
R96	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W
R97	NRSA02J-272	M.G.RESISTOR	2.7K	1/10W
R98	NRSA02J-221	M.G.RESISTOR	220	1/10W
R99	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R100	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R101	NRSA02J-333	M.G.RESISTOR	33K	1/10W
R102	NRSA02J-272	M.G.RESISTOR	2.7K	1/10W
R103	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R104	NRSA02J-101	M.G.RESISTOR	100	1/10W
R105	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R106	NRVA02D-1802	M.F.RESISTOR	18.0K	1/10W
R107	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R109	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R110	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R111	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R112	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R113	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R114	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R115	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R116	NRSA02J-154	M.G.RESISTOR	150K	1/10W
R117	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R118	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R119	NRSA02J-104	M.G.RESISTOR	100K	1/10W

Symbol No.	Part No.	Part Name	Description	
R120	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R121	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R122	NRSA02J-273	M.G.RESISTOR	27K	1/10W
R123	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R125	NRSA02J-272	M.G.RESISTOR	2.7K	1/10W
R126	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R127	NRSA02J-101	M.G.RESISTOR	100	1/10W
R128	NRSA02J-101	M.G.RESISTOR	100	1/10W
R129	NRSA02J-101	M.G.RESISTOR	100	1/10W
R130	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R131	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R132	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R133	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R134	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R135	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R136	NRSA02J-101	M.G.RESISTOR	100	1/10W
R137	NRSA02J-561	M.G.RESISTOR	560	1/10W
R138	NRSA02J-821	M.G.RESISTOR	820	1/10W
R139	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R140	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R141	NRSA02J-122	M.G.RESISTOR	1.2K	1/10W
R143	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R144	NRSA02J-101	M.G.RESISTOR	100	1/10W
R145	NRSA02J-561	M.G.RESISTOR	560	1/10W
R146	NRSA02J-821	M.G.RESISTOR	820	1/10W
R147	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R148	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R149	NRSA02J-122	M.G.RESISTOR	1.2K	1/10W
R151	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R152	NRSA02J-821	M.G.RESISTOR	820	1/10W
R153	NRSA02J-101	M.G.RESISTOR	100	1/10W
R154	NRSA02J-101	M.G.RESISTOR	100	1/10W
R155	NRSA02J-101	M.G.RESISTOR	100	1/10W
R156	NRSA02J-101	M.G.RESISTOR	100	1/10W
R157	NRSA02J-101	M.G.RESISTOR	100	1/10W
R158	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R159	NRSA02J-561	M.G.RESISTOR	560	1/10W
R160	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R161	NRSA02J-561	M.G.RESISTOR	560	1/10W
R162	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R163	NRSA02J-561	M.G.RESISTOR	560	1/10W
R164	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R165	NRSA02J-333	M.G.RESISTOR	33K	1/10W
R168	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R169	NRSA02J-471	M.G.RESISTOR	470	1/10W
R170	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R171	NRSA02J-100	M.G.RESISTOR	10	1/10W
R172	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R173	NRSA02J-471	M.G.RESISTOR	470	1/10W
R174	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R175	NRSA02J-100	M.G.RESISTOR	10	1/10W
R176	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R177	NRSA02J-471	M.G.RESISTOR	470	1/10W
R178	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R179	NRSA02J-100	M.G.RESISTOR	10	1/10W
R180	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R181	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R182	NRSA02J-104	M.G.RESISTOR	100K	1/10W
R183	NRSA02J-221	M.G.RESISTOR	220	1/10W

[PR1]

Symbol No.	Part No.	Part Name	Description
R184	NRSA02J-221	M.G.RESISTOR	220 1/10W
R185	NRSA02J-221	M.G.RESISTOR	220 1/10W
R186	NRSA02J-682	M.G.RESISTOR	6.8K 1/10W
R187	NRSA02J-221	M.G.RESISTOR	220 1/10W
R188	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R189	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R190	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R191	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R192	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R193	NRSA02J-101	M.G.RESISTOR	100 1/10W
R194	NRSA02J-101	M.G.RESISTOR	100 1/10W
R195	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R196	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
VR1	NVP1416-103	TRIM.RESISTOR	1K B INGAIN
VR2	NVP1416-502	TRIM.RESISTOR	5K G INGAIN
VR3	NVP1416-502	TRIM.RESISTOR	5K R INGAIN
VR4	NVP1416-103	TRIM.RESISTOR	1K B HI GAIN
VR5	NVP1416-103	TRIM.RESISTOR	1K G HI GAIN
VR6	NVP1416-103	TRIM.RESISTOR	1K R HI GAIN
VR7	NVP1416-203	TRIM.RESISTOR	20K R DY.V PARA
VR8	NVP1416-203	TRIM.RESISTOR	20K G DY.V PARA
VR9	NVP1416-203	TRIM.RESISTOR	20K R DY.V SAW
VR10	NVP1416-203	TRIM.RESISTOR	20K G DY.V SAW
VR11	NVP1416-503	TRIM.RESISTOR	50K B DC BAL
VR12	NVP1416-503	TRIM.RESISTOR	50K G DC BAL
VR13	NVP1416-503	TRIM.RESISTOR	50K R DC BAL
C1	NEA10JM-337	E.CAPACITOR	330 6.3V
C2	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C3	NEA10JM-337	E.CAPACITOR	330 6.3V
C4	NEA10JM-337	E.CAPACITOR	330 6.3V
C5	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C6	NEA10JM-107	E.CAPACITOR	100 6.3V
C7	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C8	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C9	NCT03CH-390	CER.CAPACITOR	39P 50V
C10	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C11	NCT03CH-220	CER.CAPACITOR	22P 50V
C12	NCT03CH-470	CER.CAPACITOR	47P 50V
C13	NEN11HM-105	NP.CAPACITOR	1.0 50V
C14	NEN11HM-105	NP.CAPACITOR	1.0 50V
C15	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C16	NCF21HZ-103	CER.CAPACITOR	0.010 50V
C17	NCT03CH-4R0	CER.CAPACITOR	4.0P 50V
C18	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C19	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C20	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C21	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C22	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C23	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C24	NEA10JM-107	E.CAPACITOR	100 6.3V
C25	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C26	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C27	NCT03CH-390	CER.CAPACITOR	39P 50V
C28	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C30	NCT03CH-470	CER.CAPACITOR	47P 50V
C31	NEN11HM-105	NP.CAPACITOR	1.0 50V

Symbol No.	Part No.	Part Name	Description
C32	NEN11HM-105	NP.CAPACITOR	1.0 50V
C33	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C34	NCF21HZ-103	CER.CAPACITOR	0.010 50V
C35	NCT03CH-4R0	CER.CAPACITOR	4.0P 50V
C36	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C37	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C38	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C39	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C40	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C41	NEN10JM-476	NP.CAPACITOR	47 6.3V
C42	NEA10JM-107	E.CAPACITOR	100 6.3V
C43	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C44	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C45	NCT03CH-390	CER.CAPACITOR	39P 50V
C46	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C48	NCT03CH-470	CER.CAPACITOR	47P 50V
C49	NEN11HM-105	NP.CAPACITOR	1.0 50V
C50	NEN11HM-105	NP.CAPACITOR	1.0 50V
C51	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C52	NCF21HZ-103	CER.CAPACITOR	0.010 50V
C53	NCT03CH-4R0	CER.CAPACITOR	4.0P 50V
C54	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C55	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C56	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C57	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C58	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C59	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C60	NEN10JM-476	NP.CAPACITOR	47 6.3V
C61	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C62	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C63	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C64	NEN11AM-106	NP.CAPACITOR	10 10V
C65	NEF11CM-105	TAN.CAPACITOR	1.0 16V
C67	NEN11AM-106	NP.CAPACITOR	10 10V
C68	NEF11CM-105	TAN.CAPACITOR	1.0 16V
C69	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C70	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C71	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C72	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C73	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C74	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C76	NEA10JM-107	E.CAPACITOR	100 6.3V
C77	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C78	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C79	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C80	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C81	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C82	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C83	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C84	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C85	NEA11AM-336	E.CAPACITOR	33 10V
C86	NEA11AM-336	E.CAPACITOR	33 10V
C87	NEA11AM-336	E.CAPACITOR	33 10V
C88	NEA10JM-107	E.CAPACITOR	100 6.3V
C89	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C90	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C91	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C92	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C93	NEF11AM-475	TAN.CAPACITOR	4.7 10V
C94	NCF21EZ-104	CER.CAPACITOR	0.10 25V

Symbol No.	Part No.	Part Name	Description
C95	NEF11AM-475	TAN.CAPACITOR	4.7 10V
C96	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C97	NEF11AM-475	TAN.CAPACITOR	4.7 10V
C101	NEF11CM-106	TAN.CAPACITOR	10 16V
C102	NEF11CM-106	TAN.CAPACITOR	10 16V
C103	NCF21HZ-103	CER.CAPACITOR	0.010 50V
C104	NCF21HZ-103	CER.CAPACITOR	0.010 50V
C105	NCF21HZ-103	CER.CAPACITOR	0.010 50V
C106	NCT03CH-2R0	CER.CAPACITOR	2.0P 50V
C108	NEF11AM-156	TAN.CAPACITOR	15 10V
C109	NEF11AM-156	TAN.CAPACITOR	15 10V
C110	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C111	NCF21EZ-104	CER.CAPACITOR	0.10 25V
VC5	NAT3112-200RZ	TRIM.CAPACITOR	20P
VC6	NAT3112-200RZ	TRIM.CAPACITOR	20P
VC7	NAT3112-200RZ	TRIM.CAPACITOR	20P
L1	SSV1330-150	COIL	15μH
L2	SSV1330-150	COIL	15μH
L3	SCV1950-100	PEAKING COIL	12μH
L4	SCV1950-100	PEAKING COIL	12μH
L5	SCV1950-100	PEAKING COIL	12μH
DL1	SCV1253-001	DELAY LINE	140nsec
DL2	SCV1569-001	DELAY LINE	120nsec
CN1	SCV0501-001	CONNECTOR	30-PIN
CN36	SCV1848-016	CONNECTOR	16-PIN
CN37	SCV1848-030	CONNECTOR	30-PIN
CN50	SCV1770-003	CONNECTOR	3-PIN
TP1	SCV1880-001	TEST POINT	
TP2	SCV1880-001	TEST POINT	
TP3	SCV1880-001	TEST POINT	
TP4	SCV1880-001	TEST POINT	

6.8 PR2 BOARD ASSEMBLY LIST 08
〈SCK2307-01-00B〉

08☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	JCS0003	I.C.(M)	JVC
IC2	JCS0003	I.C.(M)	JVC
IC3	JCS0003	I.C.(M)	JVC
IC4	RC064M	I.C.(M)	JRC
IC5	RC064M	I.C.(M)	JRC
IC6	RC064M	I.C.(M)	JRC
IC7	RC064M	I.C.(M)	JRC
IC8	NJM062M	I.C.(M)	JRC
IC9	NJM062M	I.C.(M)	JRC
IC10	NJM062M	I.C.(M)	JRC
IC11	NJM062M	I.C.(M)	JRC
IC12	RC064M	I.C.(M)	JRC
IC13	TC4S69F	I.C.(M)	TOSHIBA
IC14	TC4S69F	I.C.(M)	TOSHIBA
IC15	NJM062M	I.C.(M)	JRC
IC16	TC4S69F	I.C.(M)	TOSHIBA
IC17	SCV1360-001	I.C.(M)	JVC
IC18	SCV1360-001	I.C.(M)	JVC
Q1	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q2	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q3	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q4	2SK662(QR)	F.E.T.	MATSUSHITA
Q5	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q6	MSC3930(B)	TRANSISTOR	MOTOROLA
Q7	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q8	2SK662(QR)	F.E.T.	MATSUSHITA
Q9	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q10	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q11	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q12	2SK662(QR)	F.E.T.	MATSUSHITA
Q19	DTC124EU	TRANSISTOR	ROHM
Q20	MSC3930(B)	TRANSISTOR	MOTOROLA
Q21	MSC3930(B)	TRANSISTOR	MOTOROLA
Q22	MSC3930(B)	TRANSISTOR	MOTOROLA
Q23	MSC3930(B)	TRANSISTOR	MOTOROLA
Q24	MSC3930(B)	TRANSISTOR	MOTOROLA
Q25	MSC3930(B)	TRANSISTOR	MOTOROLA
Q26	MSC3930(B)	TRANSISTOR	MOTOROLA
Q27	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q28	DTC124EU	TRANSISTOR	ROHM
Q29	DTA124EU	TRANSISTOR	ROHM
Q30	MSC3930(B)	TRANSISTOR	MOTOROLA
Q31	MSC3930(B)	TRANSISTOR	MOTOROLA
Q32	DTC124EU	TRANSISTOR	ROHM
Q33	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q34	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q35	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q36	MSC3930(B)	TRANSISTOR	MOTOROLA
Q37	MSC3930(B)	TRANSISTOR	MOTOROLA
Q38	MSC3930(B)	TRANSISTOR	MOTOROLA
Q40	MSC3930(B)	TRANSISTOR	MOTOROLA
Q41	MSC3930(B)	TRANSISTOR	MOTOROLA
Q42	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q43	2SA1532(BC)	TRANSISTOR	MATSUSHITA

[PR2]

Symbol No.	Part No.	Part Name	Description
D1	MA142A	DIODE	MATSUSHITA
D2	MA142A	DIODE	MATSUSHITA
R1	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R2	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R3	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R4	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R5	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R6	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R7	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R8	NRSA02J-151	M.G.RESISTOR	150 1/10W
R9	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R10	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R11	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R12	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R13	NRSA02J-101	M.G.RESISTOR	100 1/10W
R14	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R15	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R16	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R17	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R18	NRSA02J-101	M.G.RESISTOR	100 1/10W
R19	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R20	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R21	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R22	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R23	NRSA02J-101	M.G.RESISTOR	100 1/10W
R24	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R25	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R26	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R27	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R28	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R29	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R30	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R31	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R32	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R33	NRSA02J-151	M.G.RESISTOR	150 1/10W
R34	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R35	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R36	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R37	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R38	NRSA02J-101	M.G.RESISTOR	100 1/10W
R39	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R42	NRSA02J-101	M.G.RESISTOR	100 1/10W
R43	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R44	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R45	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R46	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R47	NRSA02J-101	M.G.RESISTOR	100 1/10W
R48	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R49	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R50	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R51	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R52	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R53	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R54	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R55	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R56	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R57	NRSA02J-151	M.G.RESISTOR	150 1/10W
R58	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W

Symbol No.	Part No.	Part Name	Description
R59	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R60	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R61	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R62	NRSA02J-101	M.G.RESISTOR	100 1/10W
R63	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R64	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R65	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R66	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R67	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R68	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R69	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R70	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R71	NRSA02J-101	M.G.RESISTOR	100 1/10W
R72	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R73	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R86	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R87	NRSA02J-821	M.G.RESISTOR	820 1/10W
R88	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R89	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R90	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R91	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R92	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R93	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R94	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R95	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R96	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R97	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R98	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R99	NRSA02J-823	M.G.RESISTOR	82K 1/10W
R100	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R101	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R102	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R103	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R104	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R105	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R106	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R107	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R108	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R111	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R112	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R113	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R114	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R115	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R116	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R117	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R118	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R119	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R120	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R121	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R122	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R123	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R124	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R125	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R128	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R129	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R130	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R131	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R132	NRSA02J-564	M.G.RESISTOR	560K 1/10W
R133	NRSA02J-564	M.G.RESISTOR	560K 1/10W

Symbol No.	Part No.	Part Name	Description
R134	NRSA02J-684	M.G.RESISTOR	680K 1/10W
R135	NRSA02J-124	M.G.RESISTOR	120K 1/10W
R136	NRSA02J-224	M.G.RESISTOR	220K 1/10W
R137	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R138	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R139	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R140	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R141	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R142	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R143	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R144	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R145	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R146	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R147	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R148	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R149	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R150	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R151	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R152	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R153	NRSA02J-273	M.G.RESISTOR	27K 1/10W
R154	NRSA02J-221	M.G.RESISTOR	220 1/10W
R155	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R156	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R157	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R158	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R159	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R160	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R162	NRSA02J-563	M.G.RESISTOR	56K 1/10W
R163	NRSA02J-563	M.G.RESISTOR	56K 1/10W
R164	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R165	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R166	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R167	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R168	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R172	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R173	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R174	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R177	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R178	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R179	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R180	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R181	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R182	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R183	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R184	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R185	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R190	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R191	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R192	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R193	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R194	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R195	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R196	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R197	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R198	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R199	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R200	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R201	NRSA02J-123	M.G.RESISTOR	12K 1/10W
R202	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W

Symbol No.	Part No.	Part Name	Description
R203	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R204	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R205	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R206	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R207	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R208	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R209	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R210	NRSA02J-561	M.G.RESISTOR	560 1/10W
R211	NRSA02J-561	M.G.RESISTOR	560 1/10W
R212	NRSA02J-101	M.G.RESISTOR	100 1/10W
R213	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R214	NRSA02J-823	M.G.RESISTOR	82K 1/10W
R215	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R216	NRSA02J-823	M.G.RESISTOR	82K 1/10W
VR1	NVP1416-102	TRIM.RESISTOR	1K B OUT GAIN
VR2	NVP1416-102	TRIM.RESISTOR	1K R OUT GAIN
VR3	NVP1416-103	TRIM.RESISTOR	10K B GAMMA
VR4	NVP1416-103	TRIM.RESISTOR	10K G GAMMA
VR5	NVP1416-103	TRIM.RESISTOR	10K R GAMMA
VR6	NVP1416-103	TRIM.RESISTOR	10K B KNEE
VR7	NVP1416-103	TRIM.RESISTOR	10K B BLACK
VR8	NVP1416-103	TRIM.RESISTOR	10K G KNEE
VR9	NVP1416-103	TRIM.RESISTOR	10K G BLACK
VR10	NVP1416-103	TRIM.RESISTOR	10K R KNEE
VR11	NVP1416-103	TRIM.RESISTOR	10K R BLACK
VR13	NVP1416-103	TRIM.RESISTOR	10K B FLARE
VR14	NVP1416-103	TRIM.RESISTOR	10K G FLARE
VR15	NVP1416-103	TRIM.RESISTOR	10K R FLARE
VR16	NVP1416-502	TRIM.RESISTOR	5K B WHITE CLIP
VR17	NVP1416-502	TRIM.RESISTOR	5K G WHITE CLIP
VR18	NVP1416-502	TRIM.RESISTOR	5K R WHITE CLIP
VR30	NVP1415-202	TRIM.RESISTOR	2K B-G
VR31	NVP1415-202	TRIM.RESISTOR	
VR32	NVP1415-102	TRIM.RESISTOR	1K G-R
VR33	NVP1415-102	TRIM.RESISTOR	1K R-G
VR34	NVP1415-202	TRIM.RESISTOR	
C1	NEA10JM-337	E.CAPACITOR	330 6.3V
C2	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C3	NEA10JM-337	E.CAPACITOR	330 6.3V
C4	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C5	NCB21HK-333	CER.CAPACITOR	0.033 50V
C7	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C8	NEA10JM-107	E.CAPACITOR	100 6.3V
C9	NEF11EM-475	TAN.CAPACITOR	4.7 25V
C10	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C11	NEA10JM-107	E.CAPACITOR	100 6.3V
C12	NEF11CM-105	TAN.CAPACITOR	1.0 16V
C13	NEF11CM-105	TAN.CAPACITOR	1.0 16V
C14	NCB21HK-333	CER.CAPACITOR	0.033 50V
C15	NCB21HK-333	CER.CAPACITOR	0.033 50V
C16	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C17	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C18	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C19	NEN11AM-106	NP.CAPACITOR	10 10V
C20	NEF11CM-105	TAN.CAPACITOR	1.0 16V
C21	NEN11HM-105	NP.CAPACITOR	1.0 50V

[PR2]

Symbol No.	Part No.	Part Name	Description	
C22	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C23	NEN11HM-105	NP.CAPACITOR	1.0	50V
C24	NCT03CH-470	CER.CAPACITOR	47P	50V
C25	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C26	NEA10JM-107	E.CAPACITOR	100	6.3V
C27	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C28	NEA10JM-107	E.CAPACITOR	100	6.3V
C29	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C30	NCT03CH-821	CER.CAPACITOR	820P	50V
C31	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C32	NCB21HK-333	CER.CAPACITOR	0.033	50V
C34	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C35	NEA10JM-107	E.CAPACITOR	100	6.3V
C36	NEF11EM-475	TAN.CAPACITOR	4.7	25V
C37	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C38	NEA10JM-107	E.CAPACITOR	100	6.3V
C39	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C40	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C41	NCB21HK-333	CER.CAPACITOR	0.033	50V
C42	NCB21HK-333	CER.CAPACITOR	0.033	50V
C43	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C44	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C45	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C46	NEN11AM-106	NP.CAPACITOR	10	10V
C47	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C48	NEN11HM-105	NP.CAPACITOR	1.0	50V
C49	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C50	NEN11HM-105	NP.CAPACITOR	1.0	50V
C51	NCT03CH-470	CER.CAPACITOR	47P	50V
C52	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C53	NEA10JM-107	E.CAPACITOR	100	6.3V
C54	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C55	NEA10JM-107	E.CAPACITOR	100	6.3V
C56	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C57	NCT03CH-821	CER.CAPACITOR	820P	50V
C58	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C59	NCB21HK-333	CER.CAPACITOR	0.033	50V
C61	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C62	NEA10JM-107	E.CAPACITOR	100	6.3V
C63	NEF11EM-475	TAN.CAPACITOR.	4.7	25V
C64	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C65	NEA10JM-107	E.CAPACITOR	100	6.3V
C66	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C67	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C68	NCB21HK-333	CER.CAPACITOR	0.033	50V
C69	NCB21HK-333	CER.CAPACITOR	0.033	50V
C70	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C71	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C72	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C73	NEN11AM-106	NP.CAPACITOR	10	10V
C75	NEN11HM-105	NP.CAPACITOR	1.0	50V
C76	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C77	NEN11HM-105	NP.CAPACITOR	1.0	50V
C78	NCT03CH-470	CER.CAPACITOR	47P	50V
C79	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C80	NEA10JM-107	E.CAPACITOR	100	6.3V
C81	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C82	NEA10JM-107	E.CAPACITOR	100	6.3V
C83	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C84	NCT03CH-821	CER.CAPACITOR	820P	50V

Symbol No.	Part No.	Part Name	Description	
C85	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C90	NEA11AM-336	E.CAPACITOR	33	10V
C91	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C92	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C93	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C94	NEN11AM-106	NP.CAPACITOR	10	10V
C95	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C96	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C97	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C98	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C99	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C100	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C101	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C102	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C103	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C104	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C105	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C106	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C107	NEA11AM-336	E.CAPACITOR	33	10V
C108	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C109	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C110	NEF11DM-684	TAN.CAPACITOR	0.68	20V
C111	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C112	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C113	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C114	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C115	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C116	NEA11AM-336	E.CAPACITOR	33	10V
C117	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C118	NEN11AM-106	NP.CAPACITOR	10	10V
C119	NCT03CH-560	CER.CAPACITOR	56P	50V
C120	NCT03CH-560	CER.CAPACITOR	56P	50V
C121	NCT03CH-560	CER.CAPACITOR	56P	50V
C122	NCT03CH-100	CER.CAPACITOR	10P	50V
C130	NEF11CM-106	TAN.CAPACITOR	10	16V
C131	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C132	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C133	NEF11CM-105	TAN.CAPACITOR	1.0	16V
L1	SSV1330-150	COIL	15μH	
L2	SSV1330-150	COIL	15μH	
L3	SCV1950-221	PEAKING COIL	220μH	
L4	SCV1950-221	PEAKING COIL	220μH	
L5	SCV1950-221	PEAKING COIL	220μH	
S1	QSRAA12-S01	ROTARY SWITCH	MATRIX ON/OFF	
S2	QSRAA12-S01	ROTARY SWITCH	GAMMA ON/OFF	
CN37	SCV1849-030	CONNECTOR	30-PIN	
CN50	SCV1770-003	CONNECTOR	3-PIN	
TP1	SCV1880-001	TEST POINT		
TP2	SCV1880-001	TEST POINT		
TP3	SCV1880-001	TEST POINT		
TP4	SCV1880-001	TEST POINT		
TP5	SCV1880-001	TEST POINT		
TP6	SCV1880-001	TEST POINT		
TP7	SCV1880-001	TEST POINT		

Symbol No.	Part No.	Part Name	Description
TP8	SCV1880-001	TEST POINT	
TP9	SCV1880-001	TEST POINT	

6.9 CC BOARD ASSEMBLY LIST 09
〈SCK2307-02-N0A〉
〈SCK2307-02-P0A〉

09□□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	RC1496M	I.C.(M)	RAYTHEON
IC2	UA733CNS	I.C.(M)	TEXAS
IC3	NJM062M	I.C.(M)	JRC
IC4	UA733CNS	I.C.(M)	TEXAS
IC5	NJM062M	I.C.(M)	JRC
IC6	UA733CNS	I.C.(M)	TEXAS
IC9	RC1496M	I.C.(M)	RAYTHEON
Q1	MSC3930(B)	TRANSISTOR	MOTOROLA
Q2	MSC3930(B)	TRANSISTOR	MOTOROLA
Q3	2SA1622(M6)	TRANSISTOR	SANYO
Q4	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q5	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q6	2SK662(QR)	F.E.T.	MATSUSHITA
Q7	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q8	MSC3930(B)	TRANSISTOR	MOTOROLA
Q9	MSC3930(B)	TRANSISTOR	MOTOROLA
Q10	MSC3930(B)	TRANSISTOR	MOTOROLA
Q11	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q12	2SK662(QR)	F.E.T.	MATSUSHITA
Q13	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q14	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q15	MSC3930(B)	TRANSISTOR	MOTOROLA
Q16	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q17	2SK662(QR)	F.E.T.	MATSUSHITA
Q18	2SK662(QR)	F.E.T.	MATSUSHITA
Q19	2SK662(QR)	F.E.T.	MATSUSHITA
Q20	2SK662(QR)	F.E.T.	MATSUSHITA
Q21	2SK662(QR)	F.E.T.	MATSUSHITA
Q22	2SK662(QR)	F.E.T.	MATSUSHITA
Q23	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q24	MSC3930(B)	TRANSISTOR	MOTOROLA
Q25	MSC3930(B)	TRANSISTOR	MOTOROLA
Q26	MSC3930(B)	TRANSISTOR	MOTOROLA
Q27	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q28	2SK662(QR)	F.E.T.	MATSUSHITA
Q29	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q30	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q31	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q32	MSC3930(B)	TRANSISTOR	MOTOROLA
Q33	MSC3930(B)	TRANSISTOR	MOTOROLA
Q34	MSC3930(B)	TRANSISTOR	MOTOROLA
Q35	MSC3930(B)	TRANSISTOR	MOTOROLA
Q36	MSC3930(B)	TRANSISTOR	MOTOROLA
Q37	2SK662(QR)	F.E.T.	MATSUSHITA
Q38	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q39	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q40	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q41	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q42	MSC3930(B)	TRANSISTOR	MOTOROLA
Q43	MSC3930(B)	TRANSISTOR	MOTOROLA
Q44	2SK662(QR)	F.E.T.	MATSUSHITA
Q45	MSC3930(B)	TRANSISTOR	MOTOROLA
Q46	MSC3930(B)	TRANSISTOR	MOTOROLA
Q47	DTC124EU	TRANSISTOR	ROHM
Q48	MSC3930(B)	TRANSISTOR	MOTOROLA

[CC]

Symbol No.	Part No.	Part Name	Description
Q49	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q50	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q51	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q52	MSC3930(B)	TRANSISTOR	MOTOROLA
Q53	2SK662(QR)	F.E.T.	MATSUSHITA
D1	HSM88AS	DIODE	HITACHI
D2	HSM88AS	DIODE	HITACHI
R1	NRSA02J-101	M.G.RESISTOR	100 1/10W
R2	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R5	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R6	NRSA02J-821	M.G.RESISTOR	820 1/10W
R7	NRSA02J-563	M.G.RESISTOR	56K 1/10W
R8	NRSA02J-471	M.G.RESISTOR	470 1/10W
R9	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R10	NRSA02J-561	M.G.RESISTOR	560 1/10W
R12	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R13	NRSA02J-822	M.G.RESISTOR	8.2K 1/10W
R14	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R15	NRSA02J-183	M.G.RESISTOR	18K 1/10W
R16	NRSA02J-682	M.G.RESISTOR	6.8K 1/10W
R17	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R18	NRSA02J-822	M.G.RESISTOR	8.2K 1/10W
R19	NRSA02J-221	M.G.RESISTOR	220 1/10W
R20	NRSA02J-105	M.G.RESISTOR	1.0M 1/10W
R21	NRSA02J-822	M.G.RESISTOR	8.2K 1/10W
R23	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R24	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R25	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R26	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R27	NRSA02J-471	M.G.RESISTOR	470 1/10W
R28	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R29	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R30	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R34	NRSA02J-4R7	M.G.RESISTOR	4.7 1/10W
R35	NRSA02J-4R7	M.G.RESISTOR	4.7 1/10W
R36	NRSA02J-100	M.G.RESISTOR	10 1/10W
R37	NRSA02J-151	M.G.RESISTOR	150 1/10W
R38	NRSA02J-123	M.G.RESISTOR	12K 1/10W
R39	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R40	NRSA02J-470	M.G.RESISTOR	47 1/10W
R41	NRSA02J-334	M.G.RESISTOR	330K 1/10W
R43	NRSA02J-121	M.G.RESISTOR	120 1/10W
R45	NRSA02J-470	M.G.RESISTOR	47 1/10W
R46	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R47	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R48	NRSA02J-331	M.G.RESISTOR	330 1/10W
R50	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R51	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R52	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R54	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R55	NRSA02J-101	M.G.RESISTOR	100 1/10W
R56	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R57	NRSA02J-681	M.G.RESISTOR	680 1/10W
R58	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R59	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R60	NRSA02J-333	M.G.RESISTOR	33K 1/10W

Symbol No.	Part No.	Part Name	Description
R61	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R62	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R63	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R64	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R65	NRSA02J-563	M.G.RESISTOR	56K 1/10W
R66	NRSA02J-563	M.G.RESISTOR	56K 1/10W
R67	NRSA02J-563	M.G.RESISTOR	56K 1/10W
R68	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R69	NRSA02J-682	M.G.RESISTOR	6.8K 1/10W
R70	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R71	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R72	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R73	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R76	NRSA02J-4R7	M.G.RESISTOR	4.7 1/10W
R77	NRSA02J-4R7	M.G.RESISTOR	4.7 1/10W
R78	NRSA02J-100	M.G.RESISTOR	10 1/10W
R79	NRSA02J-680	M.G.RESISTOR	68 1/10W
R80	NRSA02J-470	M.G.RESISTOR	47 1/10W
R81	NRSA02J-470	M.G.RESISTOR	47 1/10W
R82	NRSA02J-101	M.G.RESISTOR	100 1/10W
R83	NRSA02J-334	M.G.RESISTOR	330K 1/10W
R84	NRSA02J-680	M.G.RESISTOR	68 1/10W
R85	NRSA02J-101	M.G.RESISTOR	100 1/10W
R86	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R87	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R88	NRSA02J-331	M.G.RESISTOR	330 1/10W
R90	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R91	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R92	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R94	NRSA02J-101	M.G.RESISTOR	100 1/10W
R95	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R96	NRSA02J-123	M.G.RESISTOR	12K 1/10W
R97	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R98	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R99	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R100	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R101	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R102	NRSA02J-472	M.G.RESISTOR	4.7K 1/10W
R103	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R104	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R105	NRSA02J-122	M.G.RESISTOR	1.2K 1/10W
R106	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R107	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R108	NRSA02J-152	M.G.RESISTOR	1.5K 1/10W
R109	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R110	NRSA02J-152	M.G.RESISTOR	1.5K 1/10W
R111	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R112	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R113	NRSA02J-471	M.G.RESISTOR	470 1/10W
R114	NRSA02J-333	M.G.RESISTOR	33K 1/10W
R115	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R116	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R117	NRSA02J-152	M.G.RESISTOR	1.5K 1/10W
R119	NRSA02J-683	M.G.RESISTOR	68K 1/10W
R120	NRSA02J-682	M.G.RESISTOR	6.8K 1/10W
R121	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R122	NRSA02J-682	M.G.RESISTOR	6.8K 1/10W
R123	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R124	NRSA02J-122	M.G.RESISTOR	1.2K 1/10W

Symbol No.	Part No.	Part Name	Description	
R125	NRSA02J-561	M.G.RESISTOR	560	1/10W
R126	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R127	NRSA02J-561	M.G.RESISTOR	560	1/10W
R128	NRSA02J-272	M.G.RESISTOR	2.7K	1/10W
R129	NRSA02J-101	M.G.RESISTOR	100	1/10W
R130	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R131	NRSA02J-273	M.G.RESISTOR	27K	1/10W
R132	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R133	NRSA02J-682	M.G.RESISTOR	6.8K	1/10W
R134	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R135	NRSA02J-152	M.G.RESISTOR	1.5K	1/10W
R137	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R138	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R139	NRSA02J-561	M.G.RESISTOR	560	1/10W
R140	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R141	NRSA02J-561	M.G.RESISTOR	560	1/10W
R142	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R143	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R144	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R145	NRSA02J-471	M.G.RESISTOR	470	1/10W
R146	NRSA02J-471	M.G.RESISTOR	470	1/10W
R147	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R148	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R149	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R150	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R151	NRSA02J-101	M.G.RESISTOR	100	1/10W
R152	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R153	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R154	NRSA02J-683	M.G.RESISTOR	68K	1/10W
R155	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R156	NRSA02J-183	M.G.RESISTOR	18K	1/10W
R157	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R158	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R159	NRSA02J-681	M.G.RESISTOR	680	1/10W
R160	NRSA02J-332	M.G.RESISTOR	3.3K	1/10W
R161	NRSA02J-822	M.G.RESISTOR	8.2K	1/10W
R162	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R163	NRSA02J-103	M.G.RESISTOR	10K	1/10W
R164	NRSA02J-471	M.G.RESISTOR	470	1/10W
R165	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W
R166	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W
R167	NRSA02J-561	M.G.RESISTOR	560	1/10W
R168	NRSA02J-562	M.G.RESISTOR	5.6K	1/10W
R169	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R170	NRSA02J-221	M.G.RESISTOR	220	1/10W
R171	NRSA02J-102	M.G.RESISTOR	1.0K	1/10W
R172	NRSA02J-223	M.G.RESISTOR	22K	1/10W
R174	NRSA02J-221	M.G.RESISTOR	220	1/10W
R175	NRSA02J-682	M.G.RESISTOR	6.8K	1/10W
R176	NRSA02J-153	M.G.RESISTOR	15K	1/10W
R177	NRSA02J-153	M.G.RESISTOR	15K	1/10W
R178	NRSA02J-101	M.G.RESISTOR	100	1/10W
R179	NRSA02J-101	M.G.RESISTOR	100	1/10W
R180	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R181	NRSA02J-471	M.G.RESISTOR	470	1/10W
R182	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R183	NRSA02J-222	M.G.RESISTOR	2.2K	1/10W
R185	NRSA02J-472	M.G.RESISTOR	4.7K	1/10W
R188	NRSA02J-392	M.G.RESISTOR	3.9K	1/10W

Symbol No.	Part No.	Part Name	Description	
R189	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R190	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
VR1	NVP1416-202	TRIM.RESISTOR	2K	G OUT GAIN
VR2	NVP1416-202	TRIM.RESISTOR	2K	VCC-BAL
VR3	NVP1416-202	TRIM.RESISTOR	2K	V-LEVEL
VR4	NVP1416-502	TRIM.RESISTOR	5K	H-LEVEL
VR5	NVP1416-502	TRIM.RESISTOR	5K	NOISE SLICE
VR6	NVP1416-202	TRIM.RESISTOR	2K	M.CC LEVEL
VR7	NVP1416-502	TRIM.RESISTOR	5K	LEVEL DEPEND
C1	NEA10JM-337	E.CAPACITOR	330	6.3V
C2	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C3	NEA11AM-227	E.CAPACITOR	220	10V
C4	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C5	NEF11DM-684	TAN.CAPACITOR	0.68	20V
C6	NCT03CH-470	CER.CAPACITOR	47P	50V
C7	NEA11AM-336	E.CAPACITOR	33	10V
C8	NEA11AM-336	E.CAPACITOR	33	10V
C9	NCT03CH-220	CER.CAPACITOR	22P	50V
C10	NCT03CH-120	CER.CAPACITOR	12P	50V
C11	NCT03CH-220	CER.CAPACITOR	22P	50V
C12	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C13	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C14	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C16	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C17	NEF11CM-106	TAN.CAPACITOR	10	16V
C18	NEF11CM-106	TAN.CAPACITOR	10	16V
C19	NCT03CH-120	CER.CAPACITOR	12P	50V
C20	NCT03CH-120	CER.CAPACITOR	12P	50V
C21	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C22	NEA10JM-107	E.CAPACITOR	100	6.3V
C23	NEF11DM-684	TAN.CAPACITOR	0.68	20V
C24	NEF11DM-684	TAN.CAPACITOR	0.68	20V
C25	NEF11DM-684	TAN.CAPACITOR	0.68	20V
C26	NEN11HM-105	NP.CAPACITOR	1.0	50V
C27	NEF11EM-475	TAN.CAPACITOR	4.7	25V
C28	NEN11HM-105	NP.CAPACITOR	1.0	50V
C29	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C30	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C31	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C32	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C33	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C35	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C36	NEF11CM-106	TAN.CAPACITOR	10	16V
C37	NEF11CM-106	TAN.CAPACITOR	10	16V
C38	NCT03CH-100	CER.CAPACITOR	10P	50V
C39	NCT03CH-100	CER.CAPACITOR	10P	50V
C41	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C42	NCT03CH-101	CER.CAPACITOR	100P	50V
C43	NCT03CH-220	CER.CAPACITOR	22P	50V
C44	NEA11AM-336	E.CAPACITOR	33	10V
C45	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C46	NEF11DM-684	TAN.CAPACITOR	0.68	20V
C47	NEF11EM-475	TAN.CAPACITOR	4.7	25V
C48	NEA11AM-336	E.CAPACITOR	33	10V
C49	NEA10JM-337	E.CAPACITOR	330	6.3V
C50	NEF11EM-475	TAN.CAPACITOR	4.7	25V
C51	NCT03CH-100	CER.CAPACITOR	10P	50V

[CC]

Symbol No.	Part No.	Part Name	Description
C52	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C53	NCT03CH-100	CER.CAPACITOR	10P 50V
C54	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C55	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C57	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C58	NEA11AM-336	E.CAPACITOR	33 10V
C59	NEA11AM-336	E.CAPACITOR	33 10V
C60	NEA11AM-336	E.CAPACITOR	33 10V
C61	NEA11CM-226	E.CAPACITOR	22 16V
C62	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C63	NEN11AM-106	NP.CAPACITOR	10 10V
C64	NEA11CM-226	E.CAPACITOR	22 16V
C65	NEN11HM-105	NP.CAPACITOR	1.0 50V
C66	NCT03CH-470	CER.CAPACITOR	47P 50V
C67	NCT03CH-330	CER.CAPACITOR	33P 50V
C68	NCT03CH-390	CER.CAPACITOR	39P 50V
C69	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C70	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C71	NEA11EM-106	E.CAPACITOR	10 25V
C72	NEA11EM-106	E.CAPACITOR	10 25V
C73	NCB21HK-102	CER.CAPACITOR	1000P 50V
C74	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C75	NEA10JM-107	E.CAPACITOR	100 6.3V
C76	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C77	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C78	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C79	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C80	NEA11AM-336	E.CAPACITOR	33 10V
C81	NEF11DM-684	TAN.CAPACITOR	0.68 20V
C82	NCT03CH-330	CER.CAPACITOR	33P 50V
C83	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C84	NCF21EZ-104	CER.CAPACITOR	0.10 25V
L1	SSV1330-150	COIL	15μH
L2	SCV1950-2R2	PEAKING COIL	2.2μH
L3	SCV1950-120	PEAKING COIL	12μH
L4	SCV1950-120	PEAKING COIL	12μH
L5	SCV1950-121	PEAKING COIL	120μH
L6	SCV1950-330	PEAKING COIL	33μH
L7	SCV1950-330	PEAKING COIL	33μH
L8	SSV1330-150	COIL	15μH
DL1	SCV1810-001	DELAY LINE	63.577μsec (U)
	SCV1811-001	DELAY LINE	1H DELAY (E)
DL2	SCV1253-001	DELAY LINE	140nsec
CN33	SCV1770-003	CONNECTOR	3-PIN
CN36	SCV1849-016	CONNECTOR	16-PIN
TP1	SCV1880-001	TEST POINT	
TP2	SCV1880-001	TEST POINT	
TP3	SCV1880-001	TEST POINT	
TP4	SCV1880-001	TEST POINT	
TP5	SCV1880-001	TEST POINT	

6.10 SE BOARD ASSEMBLY LIST 1 0

⟨SCK2308-03-N0A⟩
⟨SCK2308-03-P0A⟩

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Symbol No.	Part No.	Part Name	Description
			(U)
			(E)
IC1	TC4S69F	I.C.(M)	TOSHIBA
IC2	TC7S00F	I.C.(M)	TOSHIBA (U)
IC3	NJM062M	I.C.(M)	JRC
IC4	MC14053BF	I.C.(M)	MOTOROLA
IC5	TC50H000F	I.C.(M)	TOSHIBA
IC6	TC4S81F	I.C.(M)	TOSHIBA
IC7	AD817AR	I.C.(M)	ANALOG DEVICES
IC8	AD817AR	I.C.(M)	ANALOG DEVICES
IC9	AD817AR	I.C.(M)	ANALOG DEVICES
IC10	UPC812G2	I.C.(M)	NEC
IC11	UPC812G2	I.C.(M)	NEC
IC12	AN2020S	I.C.(M)	MATSUSHITA
IC13	AD817AR	I.C.(M)	ANALOG DEVICES
IC14	MC14053BF	I.C.(M)	MOTOROLA
IC15	JCS0001	I.C.(M)	JVC
IC16	JCS0002	I.C.(M)	JVC
IC17	MC74HC14AF	I.C.(M)	MOTOROLA
IC18	TC40H008F	I.C.(M)	TOSHIBA
IC19	TC40H008F	I.C.(M)	TOSHIBA
IC20	TC50H001F	I.C.(M)	TOSHIBA
IC21	TC7SU04F	I.C.(M)	TOSHIBA
IC22	TC7SU04F	I.C.(M)	TOSHIBA
IC23	MC14053BF	I.C.(M)	MOTOROLA
IC24	NJM062M	I.C.(M)	JRC
IC25	TC4S66F	I.C.(M)	TOSHIBA (E)
IC26	UPC812G2	I.C.(M)	NEC
IC27	MC74HC4538AF	I.C.(M)	MOTOROLA
IC28	AN6367S	I.C.(M)	MATSUSHITA
IC29	NJM319M	I.C.(M)	JRC
IC30	TC4S81F	I.C.(M)	TOSHIBA
IC31	MC14577CF	I.C.(M)	MOTOROLA
IC32	TC4S69F	I.C.(M)	TOSHIBA
IC33	LMC6082IM	I.C.(M)	NATIONAL SEMICO
IC34	TC7SU04F	I.C.(M)	TOSHIBA
IC35	TC7S08F	I.C.(M)	TOSHIBA
IC37	MC14577CF	I.C.(M)	MOTOROLA
IC38	TC7SU04F	I.C.(M)	TOSHIBA (E)
IC39	UPC812G2	I.C.(M)	NEC
IC40	TC4S66F	I.C.(M)	TOSHIBA
Q1	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q2	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q3	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q4	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q5	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q6	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q7	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q8	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q9	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q10	2SK198(Q.R)	F.E.T.	MATSUSHITA (U)
Q11	2SK198(Q.R)	F.E.T.	MATSUSHITA (U)
Q12	2SJ163(Q)	F.E.T.	(U)
Q13	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q14	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q15	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q16	2SD1820(QR)	TRANSISTOR	MATSUSHITA

Symbol No.	Part No.	Part Name	Description
Q17	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q18	DTA124EU	TRANSISTOR	ROHM
Q19	DTC124EU	TRANSISTOR	ROHM
Q20	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q21	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q22	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q23	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q24	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q25	XN4509	TRANSISTOR	MATSUSHITA
Q26	XN4509	TRANSISTOR	MATSUSHITA
Q28	XN4509	TRANSISTOR	MATSUSHITA
Q29	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q30	XN4509	TRANSISTOR	MATSUSHITA
Q31	XN4509	TRANSISTOR	MATSUSHITA
Q32	2SK198(Q.R)	F.E.T.	MATSUSHITA
Q33	2SK198(Q.R)	F.E.T.	MATSUSHITA
Q34	2SK198(Q.R)	F.E.T.	MATSUSHITA
Q35	2SK198(Q.R)	F.E.T.	MATSUSHITA
Q36	XN4509	TRANSISTOR	MATSUSHITA
Q37	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q38	XN4509	TRANSISTOR	MATSUSHITA
Q39	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q40	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q41	XN4509	TRANSISTOR	MATSUSHITA
Q42	XN4509	TRANSISTOR	MATSUSHITA
Q43	2SJ163(Q)	F.E.T.	MATSUSHITA
Q44	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q45	XN4509	TRANSISTOR	MATSUSHITA
Q46	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q47	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q48	2SB1219(QR)	TRANSISTOR	MATSUSHITA
Q49	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q50	DTC124EU	TRANSISTOR	ROHM
Q51	DTA124EU	TRANSISTOR	ROHM
Q57	2SD1820(QR)	TRANSISTOR	MATSUSHITA (E)
Q58	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q59	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q60	2SA1748(QR)	TRANSISTOR	MATSUSHITA
Q61	2SA1748(QR)	TRANSISTOR	MATSUSHITA
D1	MA335	DIODE	MATSUSHITA
D2	MA335	DIODE	MATSUSHITA
D3	MA335	DIODE	MATSUSHITA
D4	MA143A	DIODE	MATSUSHITA
D5	MA335	DIODE	MATSUSHITA
D6	MA143A	DIODE	MATSUSHITA
D7	MA143A	DIODE	MATSUSHITA
D8	SVC341L	VARI CAP DIODE	SANYO
D9	SVC341L	VARI CAP DIODE	SANYO
D10	SVC341L	VARI CAP DIODE	SANYO
R1	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R2	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R3	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R4	NRVA02D-1001	M.F.RESISTOR	1.00K 1/10W
R5	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R6	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R7	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R8	NRVA02D-1001	M.F.RESISTOR	1.00K 1/10W

Symbol No.	Part No.	Part Name	Description
R9	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R10	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R11	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R12	NRVA02D-1001	M.F.RESISTOR	1.00K 1/10W
R13	NRVA02D-1201	M.F.RESISTOR	1.20K 1/10W(U)
	NRVA02D-1002	M.F.RESISTOR	10.0K 1/10W(E)
R14	NRVA02D-8202	M.F.RESISTOR	82.0K 1/10W(U)
R15	NRVA02D-8202	M.F.RESISTOR	82.0K 1/10W(U)
R16	NRVA02D-2702	M.F.RESISTOR	27.0K 1/10W(U)
	NRVA02D-2701	M.F.RESISTOR	2.70K 1/10W(E)
R17	NRVA02D-3301	M.F.RESISTOR	3.30K 1/10W(U)
	NRVA02D-2200	M.F.RESISTOR	220 1/10W(E)
R18	NRVA02D-5600	M.F.RESISTOR	560 1/10W
R19	NRVA02D-1004	M.F.RESISTOR	1M 1/10W(U)
R20	NRVA02D-1004	M.F.RESISTOR	1M 1/10W(U)
R21	NRVA02D-1502	M.F.RESISTOR	15.0K 1/10W(U)
R22	NRVA02D-1002	M.F.RESISTOR	10.0K 1/10W(U)
R23	NRVA02D-1004	M.F.RESISTOR	1M 1/10W(U)
R24	NRVA02D-1001	M.F.RESISTOR	1.00K 1/10W
R25	NRVA02D-1001	M.F.RESISTOR	1.00K 1/10W
R26	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W
R27	NRVA02D-1001	M.F.RESISTOR	1.00K 1/10W
R28	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R29	NRVA02D-3302	M.F.RESISTOR	33.0K 1/10W
R32	NRVA02D-3302	M.F.RESISTOR	33.0K 1/10W
R33	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R34	NRVA02D-3303	M.F.RESISTOR	330K 1/10W
R35	NRVA02D-5600	M.F.RESISTOR	560 1/10W
R36	NRVA02D-1000	M.F.RESISTOR	100 1/10W
R37	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R38	NRVA02D-1000	M.F.RESISTOR	100 1/10W
R39	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R40	NRVA02D-1000	M.F.RESISTOR	100 1/10W
R41	NRVA02D-2201	M.F.RESISTOR	2.20K 1/10W
R42	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W
R43	NRVA02D-1201	M.F.RESISTOR	1.20K 1/10W
R44	NRVA02D-8201	M.F.RESISTOR	8.20K 1/10W
R45	NRVA02D-5600	M.F.RESISTOR	560 1/10W
R46	NRVA02D-1501	M.F.RESISTOR	1.50K 1/10W
R47	NRVA02D-4701	M.F.RESISTOR	4.70K 1/10W
R48	NRVA02D-3302	M.F.RESISTOR	33.0K 1/10W
R49	NRVA02D-1202	M.F.RESISTOR	12.0K 1/10W
R50	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W
R51	NRVA02D-2703	M.F.RESISTOR	270K 1/10W(U)
R52	NRVA02D-3303	M.F.RESISTOR	330K 1/10W(U)
R53	NRVA02D-4701	M.F.RESISTOR	4.70K 1/10W(U)
	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W(E)
R54	NRVA02D-2203	M.F.RESISTOR	220K 1/10W(U)
	NRVA02D-5602	M.F.RESISTOR	56.0K 1/10W(E)
R56	NRVA02D-2701	M.F.RESISTOR	2.70K 1/10W
R57	NRVA02D-1202	M.F.RESISTOR	12.0K 1/10W
R58	NRVA02D-5602	M.F.RESISTOR	56.0K 1/10W(U)
	NRVA02D-1002	M.F.RESISTOR	10.0K 1/10W(E)
R59	NRVA02D-1501	M.F.RESISTOR	1.50K 1/10W(U)
	NRVA02D-1801	M.F.RESISTOR	1.80K 1/10W(E)
R60	NRVA02D-4701	M.F.RESISTOR	4.70K 1/10W
R61	NRVA02D-1203	M.F.RESISTOR	120K 1/10W
R62	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W
R63	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W

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Symbol No.	Part No.	Part Name	Description	
R64	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W(U)
	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W(E)
R65	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W(U)
	NRVA02D-8200	M.F.RESISTOR	820	1/10W(E)
R66	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W(U)
	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W(E)
R67	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W(U)
	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W(E)
R68	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R69	NRVA02D-1503	M.F.RESISTOR	150K	1/10W
R70	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R71	NRVA02D-3902	M.F.RESISTOR	39.0K	1/10W
R72	NRVA02D-5601	M.F.RESISTOR	5.60K	1/10W
R73	NRVA02D-5601	M.F.RESISTOR	5.60K	1/10W
R74	NRVA02D-1201	M.F.RESISTOR	1.20K	1/10W(U)
	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W(E)
R75	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R76	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R77	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R78	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R79	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R80	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R81	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R82	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R83	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R84	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(E)
R85	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W(U)
	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W(E)
R86	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W(U)
	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W(E)
R87	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R88	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R89	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R90	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W
R91	NRVA02D-8200	M.F.RESISTOR	820	1/10W
R92	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W
R93	NRVA02D-8202	M.F.RESISTOR	82.0K	1/10W(E)
R94	NRVA02D-1801	M.F.RESISTOR	1.80K	1/10W(U)
	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W(E)
R95	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W(E)
R96	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W(E)
R97	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W
R98	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W
R99	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R100	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R101	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W
R102	NRVA02D-8200	M.F.RESISTOR	820	1/10W
R103	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W
R104	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R105	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R106	NRVA02D-1004	M.F.RESISTOR		
R107	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R108	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R109	NRVA02D-1004	M.F.RESISTOR		
R110	NRVA02D-2702	M.F.RESISTOR	27.0K	1/10W
R111	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R112	NRVA02D-2702	M.F.RESISTOR	27.0K	1/10W
R113	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R114	NRVA02D-3902	M.F.RESISTOR	39.0K	1/10W
R115	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W

Symbol No.	Part No.	Part Name	Description	
R116	NRVA02D-2701	M.F.RESISTOR	2.70K	1/10W(U)
	NRVA02D-1801	M.F.RESISTOR	1.80K	1/10W(E)
R117	NRVA02D-2701	M.F.RESISTOR	2.70K	1/10W(U)
	NRVA02D-1801	M.F.RESISTOR	1.80K	1/10W(E)
R118	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W(U)
	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W(E)
R119	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R120	NRVA02D-3301	M.F.RESISTOR	3.30K	1/10W
R121	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W
R122	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R123	NRVA02D-3300	M.F.RESISTOR	330	1/10W
R124	NRVA02D-1800	M.F.RESISTOR	180	1/10W
R125	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R126	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R127	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R128	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W
R129	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R130	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R131	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R132	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R134	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R135	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R136	NRVA02D-5601	M.F.RESISTOR	5.60K	1/10W
R137	NRVA02D-5601	M.F.RESISTOR	5.60K	1/10W
R138	NRVA02D-75R0	M.F.RESISTOR	75.0	1/10W
R139	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R140	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R141	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R142	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R143	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R144	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R145	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R146	NRVA02D-3303	M.F.RESISTOR	330K	1/10W
R147	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R148	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R149	NRVA02D-4700	M.F.RESISTOR	470	1/10W
R150	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R151	NRVA02D-1004	M.F.RESISTOR	1M	1/10W
R152	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R153	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R154	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R155	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R156	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W(U)
	NRVA02D-2401	M.F.RESISTOR	2.40K	1/10W(E)
R157	NRVA02D-1201	M.F.RESISTOR	1.20K	1/10W(U)
	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W(E)
R158	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W(U)
	NRVA02D-1501	M.F.RESISTOR	1.50K	1/10W(E)
R159	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R160	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(E)
R162	NRVA02D-2200	M.F.RESISTOR	220	1/10W
R163	NRVA02D-1004	M.F.RESISTOR	1M	1/10W
R164	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R165	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R166	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R167	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(E)
R168	NRVA02D-2701	M.F.RESISTOR	2.70K	1/10W
R169	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R170	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R171	NRSA02J-0R0	M.G.RESISTOR	0	1/10W

Symbol No.	Part No.	Part Name	Description	
R172	NRVA02D-1004	M.F.RESISTOR	1M	1/10W
R173	NRVA02D-2200	M.F.RESISTOR	220	1/10W
R174	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R175	NRVA02D-1801	M.F.RESISTOR	1.80K	1/10W
R176	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R177	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R178	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(E)
R179	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R180	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R181	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R182	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R183	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R184	NRVA02D-1202	M.F.RESISTOR	12.0K	1/10W
R185	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R187	NRVA02D-1201	M.F.RESISTOR	1.20K	1/10W
R188	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R190	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R191	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R192	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R193	NRVA02D-5601	M.F.RESISTOR	5.60K	1/10W
R194	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R195	NRVA02D-3303	M.F.RESISTOR	330K	1/10W
R196	NRVA02D-3303	M.F.RESISTOR	330K	1/10W
R197	NRVA02D-3303	M.F.RESISTOR	330K	1/10W
R198	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R199	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R200	NRVA02D-2203	M.F.RESISTOR	220K	1/10W
R201	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R202	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R203	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R204	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R205	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R206	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R210	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R211	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R213	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R214	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R216	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R217	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R221	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R222	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R223	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R224	NRSA02J-100	M.G.RESISTOR	10	1/10W
R225	NRSA02J-100	M.G.RESISTOR	10	1/10W
R226	NRSA02J-100	M.G.RESISTOR	10	1/10W
R227	NRSA02J-100	M.G.RESISTOR	10	1/10W
R228	NRSA02J-100	M.G.RESISTOR	10	1/10W
R229	NRSA02J-100	M.G.RESISTOR	10	1/10W
R230	NRVA02D-8201	M.F.RESISTOR	8.20K	1/10W
R231	NRVA02D-5601	M.F.RESISTOR	5.60K	1/10W
R232	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R233	NRVA02D-5603	M.F.RESISTOR	560K	1/10W
R236	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R237	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R238	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W(E)
R239	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R240	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R241	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R242	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W

Symbol No.	Part No.	Part Name	Description	
R243	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R244	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R245	NRVA02D-3900	M.F.RESISTOR	390	1/10W
R246	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R247	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R253	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R254	NRVA02D-5600	M.F.RESISTOR	560	1/10W
R261	NRVA02D-1004	M.F.RESISTOR	1M	1/10W
R262	NRVA02D-6802	M.F.RESISTOR	68.0K	1/10W
R264	NRVA02D-3301	M.F.RESISTOR	3.30K	1/10W
R265	NRVA02D-1004	M.F.RESISTOR		(E)
R266	NRVA02D-1003	M.F.RESISTOR	100K	1/10W(E)
R268	NRVA02D-3300	M.F.RESISTOR	330	1/10W
R269	NRVA02D-3300	M.F.RESISTOR	330	1/10W
R270	NRVA02D-3300	M.F.RESISTOR	330	1/10W
R271	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R272	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R273	NRVA02D-4703	M.F.RESISTOR	470K	1/10W(E)
R274	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
R275	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R276	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(E)
R277	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R278	NRVA02D-3300	M.F.RESISTOR	330	1/10W
R279	NRVA02D-5600	M.F.RESISTOR	560	1/10W
R280	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R281	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R282	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R283	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R284	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W
R285	NRVA02D-3301	M.F.RESISTOR	3.30K	1/10W
R286	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R287	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R288	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R289	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R290	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R291	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R292	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R293	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R294	NRVA02D-2702	M.F.RESISTOR	27.0K	1/10W
R295	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R296	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R297	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R298	NRVA02D-1203	M.F.RESISTOR	120K	1/10W
R299	NRVA02D-6802	M.F.RESISTOR	68.0K	1/10W
R300	NRSA02J-0R0	M.G.RESISTOR	0	1/10W(U)
VR1	NVP1415-502	TRIM.RESISTOR	5K	(E)
VR2	NVP1415-502	TRIM.RESISTOR	5K	B-Y CAR BAL
VR3	NVP1415-502	TRIM.RESISTOR	5K	R-Y CAR BAL
VR4	NVP1415-103	TRIM.RESISTOR	10K	B-Y GAIN
VR5	NVP1415-103	TRIM.RESISTOR	10K	R-Y GAIN
VR6	NVP1415-501	TRIM.RESISTOR	500	QUAD
VR7	NVP1415-503	TRIM.RESISTOR	50K	SC ADJ
VR8	NVP1415-503	TRIM.RESISTOR	50K	H ADJ
VR10	NVP1415-202	TRIM.RESISTOR	2K	SC H
VR11	NVP1415-502	TRIM.RESISTOR	5K	ZEBRA SET
C1	NCT03CH-101	CER.CAPACITOR	100P	50V
C2	NCT03CH-222	CER.CAPACITOR	2200P	50V

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Symbol No.	Part No.	Part Name	Description	
C3	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C4	NCT03CH-470	CER.CAPACITOR	47P	50V
C5	NCT03CH-100	CER.CAPACITOR	10P	50V
C6	NCT03CH-820	CER.CAPACITOR	82P	50V
C8	NCT03CH-470	CER.CAPACITOR	47P	50V
C9	NCT03CH-100	CER.CAPACITOR	10P	50V
C10	NCT03CH-390	CER.CAPACITOR	39P	50V
C11	NCT03CH-470	CER.CAPACITOR	47P	50V
C12	NCT03CH-100	CER.CAPACITOR	10P	50V
C13	NCT03CH-390	CER.CAPACITOR	39P	50V
C14	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C15	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C16	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C17	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C18	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C20	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C22	NCT03CH-151	CER.CAPACITOR	150P	50V
C23	NCT03CH-180	CER.CAPACITOR	18P	50V (U)
	NCT03CH-390	CER.CAPACITOR	39P	50V (E)
C24	NCT03CH-270	CER.CAPACITOR	27P	50V (U)
	NCT03CH-330	CER.CAPACITOR	33P	50V (E)
C25	NCT03CH-390	CER.CAPACITOR	39P	50V (U)
	NCT03CH-180	CER.CAPACITOR	18P	50V (E)
C26	NCT03CH-101	CER.CAPACITOR	100P	50V (U)
	NCT03CH-121	CER.CAPACITOR	120P	50V (E)
C29	NCT03CH-101	CER.CAPACITOR	100P	50V (U)
	NCT03CH-680	CER.CAPACITOR	68P	50V (E)
C30	NCT03CH-470	CER.CAPACITOR	47P	50V (U)
	NCT03CH-330	CER.CAPACITOR	33P	50V (E)
C31	NCT03CH-390	CER.CAPACITOR	39P	50V (U)
	NCT03CH-220	CER.CAPACITOR	22P	50V (E)
C33	NCT03CH-151	CER.CAPACITOR	150P	50V (U)
	NCT03CH-121	CER.CAPACITOR	120P	50V (E)
C34	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C35	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C36	NEA11AM-336	E.CAPACITOR	33	10V
C37	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C39	NCB21HK-103	CER.CAPACITOR	0.010	50V
C41	NCT03CH-222	CER.CAPACITOR	2200P	50V
C43	NCT03CH-222	CER.CAPACITOR	2200P	50V
C45	NCT03CH-222	CER.CAPACITOR	2200P	50V
C47	NCT03CH-222	CER.CAPACITOR	2200P	50V
C48	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C49	NEF11AM-475	TAN.CAPACITOR	4.7	10V
C52	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C53	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C54	NCT03CH-181	CER.CAPACITOR	180P	50V
C55	NCT03CH-180	CER.CAPACITOR	18P	50V
C56	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C57	NCT03CH-390	CER.CAPACITOR	39P	50V (U)
	NCT03CH-220	CER.CAPACITOR	22P	50V (E)
C58	NCT03CH-470	CER.CAPACITOR	47P	50V (U)
	NCT03CH-330	CER.CAPACITOR	33P	50V (E)
C60	NCB21HK-473	CER.CAPACITOR	0.047	50V
C61	NCB21HK-473	CER.CAPACITOR	0.047	50V
C62	NCB21HK-473	CER.CAPACITOR	0.047	50V
C64	NEF11EM-474	TAN.CAPACITOR	0.47	25V
C65	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C66	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C67	NEF11AM-475	TAN.CAPACITOR	4.7	10V

Symbol No.	Part No.	Part Name	Description	
C68	NEF10GM-106	TAN.CAPACITOR	10	4V
C69	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C70	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C71	NEF11AM-475	TAN.CAPACITOR	4.7	10V
C72	NCT03CH-222	CER.CAPACITOR	2200P	50V
C73	NEA11AM-336	E.CAPACITOR	33	10V
C74	NCB21HK-332	CER.CAPACITOR	3300P	50V
C76	NEA11AM-336	E.CAPACITOR	33	10V
C77	NCT03CH-561	CER.CAPACITOR	560P	50V
C78	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C79	NEA11AM-336	E.CAPACITOR	33	10V
C81	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C82	NCF21EZ-104	CER.CAPACITOR	0.10	25V (U)
C83	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C84	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C85	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C86	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C87	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C88	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C89	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C90	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C91	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C92	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C93	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C94	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C95	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C96	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C97	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C98	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C99	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C100	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C101	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C102	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C103	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C104	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C105	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C106	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C107	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C108	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C109	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C110	NEA11AM-336	E.CAPACITOR	33	10V
C111	NEA11AM-336	E.CAPACITOR	33	10V
C112	NEN11HM-105	NP.CAPACITOR	1.0	50V
C113	NEA11AM-336	E.CAPACITOR	33	10V
C115	NEA11AM-336	E.CAPACITOR	33	10V
C116	NEA11AM-336	E.CAPACITOR	33	10V
C117	NEA11AM-336	E.CAPACITOR	33	10V
C119	NEA11AM-336	E.CAPACITOR	33	10V
C120	NEA11AM-336	E.CAPACITOR	33	10V
C123	NEA11AM-336	E.CAPACITOR	33	10V
C124	NEA11AM-336	E.CAPACITOR	33	10V
C125	NEA11AM-336	E.CAPACITOR	33	10V
C126	NEA11AM-336	E.CAPACITOR	33	10V
C127	NEA11AM-336	E.CAPACITOR	33	10V
C128	NEA11AM-336	E.CAPACITOR	33	10V
C131	NEA11AM-336	E.CAPACITOR	33	10V
C132	NEA11AM-336	E.CAPACITOR	33	10V
C133	NEA11AM-336	E.CAPACITOR	33	10V
C134	NEA11AM-336	E.CAPACITOR	33	10V

6.11 CP1 BOARD ASSEMBLY LIST 11
⟨SCK2308-01-02A⟩ 11☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
C135	NEA11AM-336	E.CAPACITOR	33 10V
C136	NEA11AM-336	E.CAPACITOR	33 10V
C139	NEA11AM-336	E.CAPACITOR	33 10V
C140	NEA11AM-336	E.CAPACITOR	33 10V
C141	NEA11AM-336	E.CAPACITOR	33 10V
C142	NEA11AM-336	E.CAPACITOR	33 10V
C143	NEA11AM-336	E.CAPACITOR	33 10V
C144	NEA11AM-336	E.CAPACITOR	33 10V
C145	NEA11AM-336	E.CAPACITOR	33 10V
C146	NEA11AM-336	E.CAPACITOR	33 10V
C147	NEA11AM-336	E.CAPACITOR	33 10V
C148	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C149	NEA11AM-336	E.CAPACITOR	33 10V
C150	NCT03CH-271	CER.CAPACITOR	270P 50V
C151	NEA11AM-336	E.CAPACITOR	33 10V
C152	NCT03CH-121	CER.CAPACITOR	120P 50V (E)
C154	NEF11CM-105	TAN.CAPACITOR	1.0 16V (E)
C157	NCF21EZ-104	CER.CAPACITOR	0.10 25V (E)
C160	NCT03CH-222	CER.CAPACITOR	2200P 50V (E)
C161	NCB21HK-473	CER.CAPACITOR	0.047 50V
L1	SCV1950-470	PEAKING COIL	47µH
L2	SCV1950-470	PEAKING COIL	47µH
L3	SCV1950-220	PEAKING COIL	22µH (U)
	SCV1950-100	PEAKING COIL	12µH (E)
L4	SCV1950-560	PEAKING COIL	56µH (U)
	SCV1950-390	PEAKING COIL	39µH (E)
L5	SCV1950-220	PEAKING COIL	22µH
L6	SCV1950-470	PEAKING COIL	47µH
L7	SCV1950-470	PEAKING COIL	47µH
L8	SCV1950-220	PEAKING COIL	22µH
L9	SCV1950-470	PEAKING COIL	47µH
L10	SCV1950-470	PEAKING COIL	47µH
L11	SCV1950-1R5	P.COIL	1.5µH
LC1	SCV2030-001	DELAY LINE	150nsec
LC2	SCV2031-001	DELAY LINE	150nsec
X1	SCV0347-002	CRYSTAL	14.31818MHz (U)
	SCV0348-002	CRYSTAL	17.73447MHz (E)
X2	SCV2024-001	CRYSTAL	28.63636MHz (U)
	SCV2026-001	CRYSTAL	27MHz (E)
CN26	SCV1770-004	CONNECTOR	4-PIN
CN29	SCV0495-004	CONNECTOR	4-PIN
CN30	SCV0495-004	CONNECTOR	4-PIN
CN31	SSV1321-020	CONNECTOR	20-PIN
CN32	SSV1321-010	CONNECTOR	10-PIN
TP1	SCV1880-001	TEST POINT	
TP2	SCV1880-001	TEST POINT	
TP3	SCV1880-001	TEST POINT	
TP4	SCV1880-001	TEST POINT	
TP5	SCV1880-001	TEST POINT	
TP6	SCV1880-001	TEST POINT	
TP7	SCV1880-001	TEST POINT	

Symbol No.	Part No.	Part Name	Description
SK2	SCV1841-028	IC SOCKET	
IC1	MB89T715APF	I.C.(M)	FUJITSU
IC2	PLSC1130	I.C.(M)	AM27C512-150DC
IC3	LH5116NA-10	I.C.(M)	SHARP
IC4	MB89251APF	I.C.(M)	FUJITSU
IC5	MC74HC373AF	I.C.(M)	MOTOROLA
IC6	MC74HC139AF	I.C.(M)	MOTOROLA
IC7	MB89012-109	I.C.(M)	FUJITSU
IC8	MC74HC367F	I.C.(M)	MOTOROLA
IC9	JCS0005	I.C.(M)	JVC
IC10	S-2914AIF10	I.C.(M)	SEIKO
IC11	MC74HC04AF	I.C.(M)	MOTOROLA
IC13	MB88342PF	I.C.(M)	FUJITSU
IC14	RC062M	I.C.(M)	JRC
IC15	MC14053BF	I.C.(M)	MOTOROLA
IC16	RC062M	I.C.(M)	JRC
IC17	RC062M	I.C.(M)	JRC
IC18	RC062M	I.C.(M)	JRC
IC19	MC14052BF	I.C.(M)	MOTOROLA
IC20	RC062M	I.C.(M)	JRC
IC21	MC74HC74AF	I.C.(M)	MOTOROLA
IC22	S-8054HNCB	I.C.(M)	SEIKO
IC23	TC4066BF	I.C.(M)	TOSHIBA
IC24	TC7S00F	I.C.(M)	TOSHIBA
IC28	MC74HC138AF	I.C.(M)	MOTOROLA
IC29	MC74HC04AF	I.C.(M)	MOTOROLA
IC31	TC4S66F	I.C.(M)	TOSHIBA
IC32	TC7S08F	I.C.(M)	TOSHIBA
Q3	MSC3930(B)	TRANSISTOR	MOTOROLA
Q4	MSC3930(B)	TRANSISTOR	MOTOROLA
Q5	MSC3930(B)	TRANSISTOR	MOTOROLA
Q6	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q7	MSC3930(B)	TRANSISTOR	MOTOROLA
Q8	DTC124EU	TRANSISTOR	ROHM
Q9	2SB766(QR)	TRANSISTOR	MATSUSHITA
Q10	MSC3930(B)	TRANSISTOR	MOTOROLA
D3	MA143A	DIODE	MATSUSHITA
D4	MA335	DIODE	MATSUSHITA
D5	MA142A	DIODE	MATSUSHITA
D6	MA142A	DIODE	MATSUSHITA
D7	MA143A	DIODE	MATSUSHITA
D8	MA143A	DIODE	MATSUSHITA
D9	MA142A	DIODE	MATSUSHITA
D10	MA142A	DIODE	MATSUSHITA
D11	MA143A	DIODE	MATSUSHITA
D12	MA143A	DIODE	MATSUSHITA
D13	MA142A	DIODE	MATSUSHITA
D14	MA142A	DIODE	MATSUSHITA
D15	MA143A	DIODE	MATSUSHITA
D18	MA143A	DIODE	MATSUSHITA
R1	NRVA02D-1001	M.F.RESISTOR	1.00K 1/10W

[CP1]

Symbol No.	Part No.	Part Name	Description	
R2	NRVA02D-4702	M.F.RESISTOR	47.0K	1/10W
R3	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R5	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R6	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R7	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R8	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R9	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R12	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R13	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R14	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R15	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R16	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R17	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R18	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R19	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R20	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R21	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R23	NRVA02D-3903	M.F.RESISTOR	390K	1/10W
R24	NRVA02D-1203	M.F.RESISTOR	120K	1/10W
R25	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R26	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R27	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R28	NRVA02D-22R0	M.F.RESISTOR	22.0	1/10W
R29	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R30	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R32	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R33	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R34	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R35	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R36	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R37	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R38	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R39	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R40	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R41	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R42	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R43	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R44	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R45	NRVA02D-3301	M.F.RESISTOR	3.30K	1/10W
R46	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R47	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R49	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R50	NRVA02D-1202	M.F.RESISTOR	12.0K	1/10W
R51	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R52	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R53	NRVA02D-1202	M.F.RESISTOR	12.0K	1/10W
R54	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R55	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R56	NRVA02D-2203	M.F.RESISTOR	220K	1/10W
R57	NRVA02D-1202	M.F.RESISTOR	12.0K	1/10W
R58	NRVA02D-3303	M.F.RESISTOR	330K	1/10W
R59	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R61	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R62	NRVA02D-6802	M.F.RESISTOR	68.0K	1/10W
R63	NRVA02D-2703	M.F.RESISTOR	270K	1/10W
R64	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R65	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R66	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R67	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R68	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R69	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R70	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R71	NRVA02D-4702	M.F.RESISTOR	47.0K	1/10W
R72	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R73	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R74	NRVA02D-6801	M.F.RESISTOR	6.80K	1/10W
R75	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R76	NRVA02D-1802	M.F.RESISTOR	18.0K	1/10W
R77	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R78	NRVA02D-1802	M.F.RESISTOR	18.0K	1/10W
R79	NRVA02D-3302	M.F.RESISTOR	33.0K	1/10W
R80	NRVA02D-6802	M.F.RESISTOR	68.0K	1/10W
R81	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R82	NRVA02D-4703	M.F.RESISTOR	470K	1/10W
R83	NRVA02D-4703	M.F.RESISTOR	470K	1/10W
R84	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R85	NRVA02D-1001	M.F.RESISTOR	1.00K	1/10W
R87	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R88	NRVA02D-2702	M.F.RESISTOR	27.0K	1/10W
R89	NRVA02D-3901	M.F.RESISTOR	3.90K	1/10W
R90	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R91	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R92	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R93	NRVA02D-1801	M.F.RESISTOR	1.80K	1/10W
R94	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R95	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R96	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R97	NRVA02D-1502	M.F.RESISTOR	15.0K	1/10W
R98	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R99	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R100	NRVA02D-2201	M.F.RESISTOR	2.20K	1/10W
R101	NRVA02D-1500	M.F.RESISTOR	150	1/10W
R102	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R103	NRSA02J-0R0	M.G.RESISTOR	0	1/10W
R104	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R105	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R106	NRVA02D-22R0	M.F.RESISTOR	22.0	1/10W
R107	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R108	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R109	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R110	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R111	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R112	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R113	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R114	NRVA02D-4702	M.F.RESISTOR	47.0K	1/10W
R115	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R116	NRVA02D-2702	M.F.RESISTOR	27.0K	1/10W
R117	NRVA02D-1802	M.F.RESISTOR	18.0K	1/10W
R118	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R119	NRVA02D-4700	M.F.RESISTOR	470	1/10W
R120	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R121	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R122	NRVA02D-1000	M.F.RESISTOR	100	1/10W
R123	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R124	NRVA02D-2202	M.F.RESISTOR	22.0K	1/10W
R125	NRVA02D-4701	M.F.RESISTOR	4.70K	1/10W
R126	NRVA02D-1002	M.F.RESISTOR	10.0K	1/10W
R127	NRVA02D-1003	M.F.RESISTOR	100K	1/10W
R128	NRSA02J-0R0	M.G.RESISTOR	0	1/10W

Symbol No.	Part No.	Part Name	Description	
VR1	NVP1415-502	TRIM.RESISTOR	5K	B-G
VR2	NVP1415-502	TRIM.RESISTOR	5K	R-G
VR3	NVP1415-503	TRIM.RESISTOR	50K	NAM LEVEL
VR5	NVP1415-104	TRIM.RESISTOR	100K	A/D OFFSET
VR7	NVP1415-503	TRIM.RESISTOR	20K	
C1	NCB21EK-473	CER.CAPACITOR	0.047	25V
C2	NCB21HK-562	CER.CAPACITOR	5600P	50V
C3	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C5	NCT03CH-820	CER.CAPACITOR	82P	50V
C7	NCT03CH-150	CER.CAPACITOR	15P	50V
C8	NCB21EK-473	CER.CAPACITOR	0.047	25V
C9	NCT03CH-821	CER.CAPACITOR	820P	50V
C10	NCB21EK-473	CER.CAPACITOR	0.047	25V
C11	NCT03CH-181	CER.CAPACITOR	180P	50V
C12	NCT03CH-151	CER.CAPACITOR	150P	50V
C14	NCB21EK-473	CER.CAPACITOR	0.047	25V
C15	NCB21EK-473	CER.CAPACITOR	0.047	25V
C16	NCB21EK-473	CER.CAPACITOR	0.047	25V
C17	NCB21EK-473	CER.CAPACITOR	0.047	25V
C18	NEF11AM-156	TAN.CAPACITOR	15	10V
C19	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C20	NCB21EK-473	CER.CAPACITOR	0.047	25V
C21	NCB21EK-473	CER.CAPACITOR	0.047	25V
C22	NCB21EK-473	CER.CAPACITOR	0.047	25V
C23	NCB21EK-473	CER.CAPACITOR	0.047	25V
C24	NCB21EK-473	CER.CAPACITOR	0.047	25V
C25	NCB21EK-473	CER.CAPACITOR	0.047	25V
C26	NCB21EK-473	CER.CAPACITOR	0.047	25V
C27	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C28	NCB21EK-473	CER.CAPACITOR	0.047	25V
C29	NCB21EK-473	CER.CAPACITOR	0.047	25V
C31	NCB21EK-393	CER.CAPACITOR	0.039	25V
C33	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C34	NEN11HM-105	NP.CAPACITOR	1.0	50V
C35	NCT03CH-150	CER.CAPACITOR	15P	50V
C36	NCB21EK-473	CER.CAPACITOR	0.047	25V
C37	NEF11AM-475	TAN.CAPACITOR	4.7	10V
C38	NEF11CM-105	TAN.CAPACITOR	1.0	16V
C39	NCF21EZ-104	CER.CAPACITOR	0.10	25V
C40	NCB21EK-473	CER.CAPACITOR	0.047	25V
C41	NEA11EM-106	E.CAPACITOR	10	25V
C42	NCB21EK-473	CER.CAPACITOR	0.047	25V
C43	NEA11CM-476	E.CAPACITOR	47	16V
C44	NEA10JM-107	E.CAPACITOR	100	6.3V
C45	NEA10JM-107	E.CAPACITOR	100	6.3V
C46	NEA10JM-107	E.CAPACITOR	100	6.3V
C47	NEN11HM-105	NP.CAPACITOR	1.0	50V
C52	NCB21EK-473	CER.CAPACITOR	0.047	25V
C53	QEZ0171-224	E.CAPACITOR	0.22	
C54	NCB21EK-473	CER.CAPACITOR	0.047	25V
C56	NCT03CH-221	CER.CAPACITOR	220P	50V
C57	NFV61EJ-104	F CAP	0.10	25V
C58	NEF11AM-156	TAN.CAPACITOR	15	10V
C59	NFV61EJ-104	F CAP	0.10	25V
C60	NEF11EM-475	TAN.CAPACITOR	4.7	25V
C61	NCF21EZ-104	CER.CAPACITOR	0.10	25V

Symbol No.	Part No.	Part Name	Description
L1	SSV1330-150	COIL	15μH
L2	SSV1330-150	COIL	15μH
L3	SCV1950-220	PEAKING COIL	22μH
L4	SCV1950-4R7	PEAKING COIL	4.7μH
X1	SCV2029-001	CRYSTAL	7.373MHz
S1	SCV2247-004	SWITCH	
CN18	SCV1770-009	CONNECTOR	9-PIN
CN27	SSV1321-020	CONNECTOR	20-PIN
CN28	SSV1321-020	CONNECTOR	20-PIN
CN43	SCV1770-004	CONNECTOR	4-PIN
CN44	SCV1814-008	CONNECTOR	8-PIN
CN45	SCV1814-008	CONNECTOR	8-PIN
CN46	SCV1814-008	CONNECTOR	8-PIN
CN47	SCV1814-008	CONNECTOR	8-PIN

6.12 CP2 BOARD ASSEMBLY LIST 1 2
〈SCK2308-02-00A〉

1 2 □□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	MC74HC165F	I.C.(M)	MOTOROLA
IC2	MC74HC367F	I.C.(M)	MOTOROLA
R1	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R2	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R3	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R4	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R5	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R6	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R7	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R8	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
R9	NRVA02D-2202	M.F.RESISTOR	22.0K 1/10W
C1	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C2	NCB21EK-473	CER.CAPACITOR	0.047 25V
S1	SCV2162-001	SWITCH	SET
S2	SCV2162-001	SWITCH	UP
S3	SCV2162-001	SWITCH	DOWN
CN44	SCV1821-008	CONNECTOR	8-PIN
CN45	SCV1821-008	CONNECTOR	8-PIN
CN46	SCV1821-008	CONNECTOR	8-PIN
CN47	SCV1821-008	CONNECTOR	8-PIN

6.13 PS BOARD ASSEMBLY LIST 1 3
〈SCK2306-03-01A〉

1 3 □□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	TL1451CNS	I.C.(M)	TEXAS
IC2	LM2904M	I.C.(M)	TEXAS
IC3	LM2904M	I.C.(M)	TEXAS
IC4	MC74HC02AF	I.C.(M)	MOTOROLA
IC5	MC74HC74AF	I.C.(M)	MOTOROLA
Q1	2SA1244(Y)	TRANSISTOR	TOSHIBA
Q2	2SA1244(Y)	TRANSISTOR	TOSHIBA
Q3	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q4	2SA1244(Y)	TRANSISTOR	TOSHIBA
Q5	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q6	2SA1244(Y)	TRANSISTOR	TOSHIBA
Q7	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q8	2SA1244(Y)	TRANSISTOR	TOSHIBA
Q9	2SD1820(QR)	TRANSISTOR	MATSUSHITA
Q10	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q11	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q12	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q13	2SA1532(BC)	TRANSISTOR	MATSUSHITA
Q14	2SK1335S	F.E.T.	HITACHI
Q15	2SK1335S	F.E.T.	HITACHI
Q16	2SC3303(Y)	TRANSISTOR	TOSHIBA
Q17	DTC124EU	TRANSISTOR	ROHM
Q18	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q19	DTC124EU	TRANSISTOR	ROHM
Q20	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
Q21	MSC3930(B)	SI.TRANSISTOR	MOTOROLA
D1	SB540	DIODE	GENERAL INST
D2	SB140	DIODE	GENERAL INST
D3	MA142WA	DIODE	MATSUSHITA
D4	ERA82-004	DIODE	FUJIELECTRIC
D5	ERA82-004	DIODE	FUJIELECTRIC
D6	ERA82-004	DIODE	FUJIELECTRIC
D7	ERA82-004	DIODE	FUJIELECTRIC
D8	ERA82-004	DIODE	FUJIELECTRIC
D9	ERA82-004	DIODE	FUJIELECTRIC
D10	MA143A	DIODE	MATSUSHITA
D11	MA142A	DIODE	MATSUSHITA
R1	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R2	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R3	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R4	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R5	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R6	NRSA02J-224	M.G.RESISTOR	220K 1/10W
R7	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R8	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R9	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R10	NRSA02J-271	M.G.RESISTOR	270 1/10W
R11	NRSA02J-271	M.G.RESISTOR	270 1/10W
R12	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R13	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R14	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R15	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W

Symbol No.	Part No.	Part Name	Description
R16	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R17	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R18	NRSA02J-224	M.G.RESISTOR	220K 1/10W
R19	NRSA02J-101	M.G.RESISTOR	100 1/10W
R20	NRSA02J-121	M.G.RESISTOR	120 1/10W
R21	NRSA02J-124	M.G.RESISTOR	120K 1/10W
R22	NRSA02J-100	M.G.RESISTOR	10 1/10W
R23	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R24	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R25	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R26	NRSA02J-271	M.G.RESISTOR	270 1/10W
R27	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R28	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R29	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R30	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R31	NRSA02J-101	M.G.RESISTOR	100 1/10W
R32	NRSA02J-471	M.G.RESISTOR	470 1/10W
R33	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R34	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R35	NRSA02J-562	M.G.RESISTOR	5.6K 1/10W
R36	NRSA02J-101	M.G.RESISTOR	100 1/10W
R37	NRSA02J-101	M.G.RESISTOR	100 1/10W
R38	NRSA02J-221	M.G.RESISTOR	220 1/10W
R39	NRSA02J-221	M.G.RESISTOR	220 1/10W
R40	QRD161J-180	C.RESISTOR	18 1/6W
R41	QRD161J-0R0	C.RESISTOR	0 1/6W
R42	QRD161J-0R0	C.RESISTOR	0 1/6W
R43	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R44	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R45	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R47	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R48	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R49	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R50	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R51	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R52	NRSA02J-223	M.G.RESISTOR	22K 1/10W
VR1	QVPB612-102	TRIM.RESISTOR	1.0K +5V ADJ
C2	NEF11CM-106	TAN.CAPACITOR	10 16V
C3	QEPA1HM-105	E.CAPACITOR	1.0 50V
C4	NCT03CH-471	CER.CAPACITOR	470P 50V
C5	QFN41HJ-222	MY.CAPACITOR	2200P 50V
C6	NCT03CH-471	CER.CAPACITOR	470P 50V
C7	QEPA1HM-105	E.CAPACITOR	1.0 50V
C8	QETA0JM-108	E.CAPACITOR	1000 6.3V
C9	QETA0JM-108	E.CAPACITOR	1000 6.3V
C10	QEX41AK-226	E.CAPACITOR	22 10V
C11	QEX41AK-226	E.CAPACITOR	22 10V
C12	QEX41AK-226	E.CAPACITOR	22 10V
C13	QEJ41AM-106	E.CAPACITOR	10 10V
C14	NEF11EM-475	TAN.CAPACITOR	4.7 25V
C15	QETA1AM-477	E.CAPACITOR	470 10V
C16	QETA1CM-477	E.CAPACITOR	470 16V
C17	QETA1CM-477	E.CAPACITOR	470 16V
C18	QEX41CM-156	E.CAPACITOR	15 16V
C19	QEX41CM-156	E.CAPACITOR	15 16V
C20	QEX41CM-156	E.CAPACITOR	15 16V

Symbol No.	Part No.	Part Name	Description
C23	QETA1AM-477	E.CAPACITOR	470 10V
C24	NCB21EK-473	CER.CAPACITOR	0.047 25V
C25	QER41EM-106	E.CAPACITOR	10 25V
C26	QER41EM-106	E.CAPACITOR	10 25V
C27	QETA1CM-477	E.CAPACITOR	470 16V
C28	QFN41HJ-102	MY.CAPACITOR	1000P 50V
C29	QETA1EM-477	E.CAPACITOR	470 25V
C30	QETA1EM-477	E.CAPACITOR	470 25V
C31	QETA1AM-477	E.CAPACITOR	470 10V
C32	QETA1AM-477	E.CAPACITOR	470 10V
C33	QETA1CM-477	E.CAPACITOR	470 16V
C34	QETA1CM-477	E.CAPACITOR	470 16V
C35	QETA1AM-477	E.CAPACITOR	470 10V
C36	QEM41EM-108	E.CAPACITOR	1000 25V
C37	QETA1EM-108	E.CAPACITOR	1000 25V
C38	NEF11CM-106	TAN.CAPACITOR	10 16V
C39	NEF11CM-106	TAN.CAPACITOR	10 16V
L1	SCV0390-025	CHOKE COIL	25μH
L2	SCV1957-001	PEAKING COIL	120μH
L3	SCV0390-025	CHOKE COIL	25μH
L4	SCV0391-250	CHOKE COIL	250μH
L5	SCV0390-025	CHOKE COIL	25μH
L6	SCV0983-500	PEAKING COIL	50μH
L7	SCV0983-500	PEAKING COIL	50μH
L8	SCV0983-500	PEAKING COIL	50μH
L9	SCV0983-500	PEAKING COIL	50μH
CN2	SCV0501-001	CONNECTOR	30-PIN
TP1	SCV1397	TEST POINT	
TP2	SCV1397	TEST POINT	
TP3	SCV1397	TEST POINT	
CP1	ICP-F25	I.C.PROTECTOR	
CP2	ICP-F10	I.C.PROTECTOR	
CP3	ICP-F10	I.C.PROTECTOR	
T1	SCV2032-001	DC-DC TRANSF.	

6.14 IF BOARD ASSEMBLY LIST $\boxed{1}\boxed{4}$
〈SCK2306-02-00B〉

$\boxed{1}\boxed{4}$☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	AD817AR	I.C.(M)	ANALOG DEVICES
D1	MA143A	DIODE	MATSUSHITA
D2	MA143A	DIODE	MATSUSHITA
D3	MA143A	DIODE	MATSUSHITA
D4	MA143A	DIODE	MATSUSHITA
D5	MA143A	DIODE	MATSUSHITA
D6	MA143A	DIODE	MATSUSHITA
D7	MA143A	DIODE	MATSUSHITA
D8	MA143A	DIODE	MATSUSHITA
D9	MA143A	DIODE	MATSUSHITA
D10	MA143A	DIODE	MATSUSHITA
D11	MA143A	DIODE	MATSUSHITA
D12	MA143A	DIODE	MATSUSHITA
D13	MA143A	DIODE	MATSUSHITA
D14	MA143A	DIODE	MATSUSHITA
D15	MA143A	DIODE	MATSUSHITA
D16	MA143A	DIODE	MATSUSHITA
D17	MA143A	DIODE	MATSUSHITA
D18	MA143A	DIODE	MATSUSHITA
D19	MA143A	DIODE	MATSUSHITA
R1	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R2	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R3	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R4	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R5	NRSA02J-101	M.G.RESISTOR	100 1/10W
R6	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W
R7	NRVA02D-5601	M.F.RESISTOR	5.60K 1/10W
R8	NRVA02D-75R0	M.F.RESISTOR	75.0 1/10W
R9	NRSA02J-682	M.G.RESISTOR	6.8K 1/10W
C1	QER41AM-476	E.CAPACITOR	47 10V
C2	QER41AM-476	E.CAPACITOR	47 10V
LC1	EXC-EMT271BC	EMI FILTER	MURATA
CN11	SSV1591-L03	CONNECTOR	3-PIN
CN23	SSV1591-L02	CONNECTOR	2-PIN
CN34	SCV2447-020	CONNECTOR	20-PIN
CN35	SCV2447-020	CONNECTOR	20-PIN
CN39	SCV1259-50P	CONNECTOR	50-PIN
CN42	SCV1978-L02	CONNECTOR	2-PIN

6.15 MT1 BOARD ASSEMBLY LIST $\boxed{1}\boxed{5}$
〈SCK2306-01-01A〉

$\boxed{1}\boxed{5}$☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
IC1	MC14053BF	I.C.(M)	MOTOROLA
IC3	RC2068MD	I.C.(M)	RAYTHEON
IC5	MC14053BF	I.C.(M)	MOTOROLA
IC6	MC14094BF	I.C.(M)	MOTOROLA
IC7	MC14094BF	I.C.(M)	MOTOROLA
IC8	MC74HC4053F	I.C.(M)	MOTOROLA
Q1	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q2	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q3	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q4	2SC4562(QR)	TRANSISTOR	MATSUSHITA
Q5	DTA124EU	TRANSISTOR	ROHM
Q6	DTA124EU	TRANSISTOR	ROHM
D1	MA143A	DIODE	MATSUSHITA
D2	MA143A	DIODE	MATSUSHITA
D3	MA143A	DIODE	MATSUSHITA
D4	MA143A	DIODE	MATSUSHITA
D5	MA143A	DIODE	MATSUSHITA
D6	MA142A	DIODE	MATSUSHITA
R1	NRSA02J-101	M.G.RESISTOR	100 1/10W
R2	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R3	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R4	NRSA02J-102	M.G.RESISTOR	1.0K 1/10W
R5	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R6	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R7	NRSA02J-392	M.G.RESISTOR	3.9K 1/10W
R8	NRSA02J-272	M.G.RESISTOR	2.7K 1/10W
R9	NRSA02J-101	M.G.RESISTOR	100 1/10W
R10	NRSA02J-101	M.G.RESISTOR	100 1/10W
R11	NRSA02J-101	M.G.RESISTOR	100 1/10W
R12	NRSA02J-471	M.G.RESISTOR	470 1/10W
R13	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R14	NRSA02J-561	M.G.RESISTOR	560 1/10W
R15	NRSA02J-181	M.G.RESISTOR	180 1/10W
R16	NRSA02J-220	M.G.RESISTOR	22 1/10W
R17	NRSA02J-220	M.G.RESISTOR	22 1/10W
R18	NRSA02J-101	M.G.RESISTOR	100 1/10W
R19	NRSA02J-471	M.G.RESISTOR	470 1/10W
R20	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R21	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R22	NRSA02J-181	M.G.RESISTOR	180 1/10W
R23	NRSA02J-101	M.G.RESISTOR	100 1/10W
R24	NRSA02J-474	M.G.RESISTOR	470K 1/10W
R25	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R26	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R27	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R28	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R29	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R30	NRSA02J-222	M.G.RESISTOR	2.2K 1/10W
R31	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R32	NRSA02J-153	M.G.RESISTOR	15K 1/10W
R33	NRSA02J-104	M.G.RESISTOR	100K 1/10W
R101	NRSA02J-0R0	M.G.RESISTOR	0 1/10W

Symbol No.	Part No.	Part Name	Description
C1	QEPA1CM-106	E.CAPACITOR	10 16V
C2	QEJ41AM-476	E.CAPACITOR	47 10V
C3	QEJ41AM-476	E.CAPACITOR	47 10V
C4	QER41EM-106	E.CAPACITOR	10 25V
C5	QEPA1CM-106	E.CAPACITOR	10 16V
C6	NCT03CH-331	CER.CAPACITOR	330P 50V
C7	NCT03CH-681	CER.CAPACITOR	680P 50V
C8	QER40JM-476	E.CAPACITOR	47 6.3V
C9	QER40JM-476	E.CAPACITOR	47 6.3V
C10	QER41EM-106	E.CAPACITOR	10 25V
C11	QEPA1CM-106	E.CAPACITOR	10 16V
C12	NCT03CH-331	CER.CAPACITOR	330P 50V
C13	NCT03CH-681	CER.CAPACITOR	680P 50V
C14	QER40JM-476	E.CAPACITOR	47 6.3V
C15	QER40JM-476	E.CAPACITOR	47 6.3V
C16	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C17	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C18	NEF11CM-105	TAN.CAPACITOR	1.0 16V
C19	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C20	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C21	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C22	NCF21EZ-104	CER.CAPACITOR	0.10 25V
LC1	EXC-EMT271BC	EMI FILTER	MURATA
S1	QSRAA22-S01	ROTARY SWITCH	AUDIO LINE
S2	QSRAA22-S01	ROTARY SWITCH	SELECT
CN1	SCV0500-001	CONNECTOR	30-PIN
CN2	SCV0500-001	CONNECTOR	30-PIN
CN12	SCV2447-006	CONNECTOR	6-PIN
CN13	SCV1978-L05	CONNECTOR	5-PIN
CN19	SCV1978-S12	CONNECTOR	12-PIN
CN20	SCV2447-020	CONNECTOR	20-PIN
CN21	SCV1978-S10	CONNECTOR	10-PIN
CN24	SCV1978-S07	CONNECTOR	7-PIN
CN25	SCV1978-S06	CONNECTOR	6-PIN
CN27	SCV2446-020	CONNECTOR	20-PIN
CN28	SCV2446-020	CONNECTOR	20-PIN
CN29	SCV0494-004	CONNECTOR	4-PIN
CN30	SCV0494-004	CONNECTOR	4-PIN
CN31	SCV2447-020	CONNECTOR	20-PIN
CN32	SCV2447-010	CONNECTOR	10-PIN
CN34	SCV2446-020	CONNECTOR	20-PIN
CN35	SCV2446-020	CONNECTOR	20-PIN
CN48	SCV1978-S03	CONNECTOR	3-PIN
CN49	SCV1978-S02	CONNECTOR	2-PIN
TP1	SCV1880-001	TEST POINT	

6.16 MT2 BOARD ASSEMBLY LIST 16
〈SCK2306-12-00B〉

16□□□□□□

Symbol No.	Part No.	Part Name	Description
IC1	MC74HC165F	I.C.(M)	MOTOROLA
IC2	MC74HC165F	I.C.(M)	MOTOROLA
D1	HZ6(2C)L	ZENER DIODE	HITACHI
D2	HZ3BLL	ZENER DIODE	HITACHI
D3	HZ6(2C)L	ZENER DIODE	HITACHI
D4	MA142WK	DIODE	MATSUSHITA
D5	MA142A	DIODE	MATSUSHITA
D6	MA143A	DIODE	MATSUSHITA
D7	MA143A	DIODE	MATSUSHITA
D8	MA143A	DIODE	MATSUSHITA
D9	MA143A	DIODE	MATSUSHITA
D10	MA142A	DIODE	MATSUSHITA
R1	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R2	QRD161J-152	C.RESISTOR	1.5K 1/6W
R3	NRSA02J-123	M.G.RESISTOR	12K 1/10W
R4	NRSA02J-563	M.G.RESISTOR	56K 1/10W
R5	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R6	NRSA02J-223	M.G.RESISTOR	22K 1/10W
R7	NRSA02J-104	M.G.RESISTOR	100K 1/10W
RA1	NRB151J-223	RESISTOR ARRAY	22K
C1	QETA1EM-108	E.CAPACITOR	1000 25V
C2	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C3	QER40JM-476	E.CAPACITOR	47 6.3V
C4	NCF21EZ-104	CER.CAPACITOR	0.10 25V
C5	NCF21EZ-104	CER.CAPACITOR	0.10 25V
CN14	SCV1978-S08	CONNECTOR	8-PIN
CN15	SCV1978-S05	CONNECTOR	5-PIN
CN16	SCV1978-S08	CONNECTOR	8-PIN
CN17	SSV1591-S06	CONNECTOR	6-PIN
CN20	SCV2447-020	CONNECTOR	20-PIN
CN23	SSV1591-S02	CONNECTOR	2-PIN

6.17 CN1 BOARD ASSEMBLY LIST 17

〈SCK2306-10-00A〉 17☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
CN13	SCV1978-S05	CONNECTOR	5-PIN

6.18 CN2 BOARD ASSEMBLY LIST 18

〈SCK2306-11-00A〉 18☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
R10	NRSA02J-750	M.G.RESISTOR	75 1/10W
CN26	SCV1978-L04	CONNECTOR	4-PIN
CN42	SCV1978-L02	CONNECTOR	2-PIN

6.19 SW1 BOARD ASSEMBLY LIST 19

〈SCK2306-04-00A〉 19☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
S7	SCV0516-A18JB2	TOGGLE SWITCH	AUTO.SET/WHITE
S8	SCV1639-001	PUSH SWITCH	VTR.TRIG1
S9	SCV0337-002	TOGGLE SWITCH	ZEBRA
CN15	SCV1978-L05	CONNECTOR	5-PIN

6.20 SW2 BOARD ASSEMBLY LIST 20

〈SCK2306-05-00A〉 20☐☐☐☐☐☐

Symbol No.	Part No.	Part Name	Description
SP1	SC43656-185	SPACER	
Q1	2SK662(QR)	F.E.T.	MATSUSHITA
LD1	SLB-26UR5	L.E.D.	ROHM
R1	NRSA02J-332	M.G.RESISTOR	3.3K 1/10W
R2	NRSA02J-152	M.G.RESISTOR	1.5K 1/10W
R3	NRSA02J-473	M.G.RESISTOR	47K 1/10W
R4	NRSA02J-564	M.G.RESISTOR	560K 1/10W
S1	SCV1313-001	TOGGLE SWITCH	POWER
CN11	SSV1591-L03	CONNECTOR	3-PIN
CN17	SSV1591-S06	CONNECTOR	6-PIN
CN38	SCV1978-S02	CONNECTOR	2-PIN

6.21 SW3 BOARD ASSEMBLY LIST 21
〈SCK2306-06-00A〉

21□□□□□□

Symbol No.	Part No.	Part Name	Description
S2	SCV1639-001	PUSH SWITCH	VTR TRIG.2
CN38	SCV1978-L02	CONNECTOR	2-PIN

6.22 SW4 BOARD ASSEMBLY LIST 22
〈SCK2306-07-00A〉

22□□□□□□

Symbol No.	Part No.	Part Name	Description
R6	NRSA02J-103	M.G.RESISTOR	10K 1/10W
R7	NRSA02J-103	M.G.RESISTOR	10K 1/10W
C1	NCF21EZ-104	CER.CAPACITOR	0.10 25V
S3	SCV0516-A13HB2	TOGGLE SWITCH	GAIN
S4	SCV0516-A18JB2	TOGGLE SWITCH	DISPLAY
S5	SCV0337-002	TOGGLE SWITCH	MODE
S6	SCV0338-002	TOGGLE SWITCH	W.BAL
CN16	SCV1978-L08	CONNECTOR	8-PIN

6.23 SW5 BOARD ASSEMBLY LIST 23
〈SCK2306-08-00A〉

23□□□□□□

Symbol No.	Part No.	Part Name	Description
SP1	SC43656-050	LED SPACER	
LD2	GL3HS44	L.E.D.	SHARP
S10	SCV1639-001	PUSH SWITCH	AUTO SHOOT
S11	SCV1639-001	PUSH SWITCH	LOLUX
S12	QSS1A13-S01	SLIDE SWITCH	IRIS OVER/UNDER
S13	QSS1A13-S01	SLIDE SWITCH	SHUTTER/C.VIEW
CN18	SCV1978-L09	CONNECTOR	9-PIN

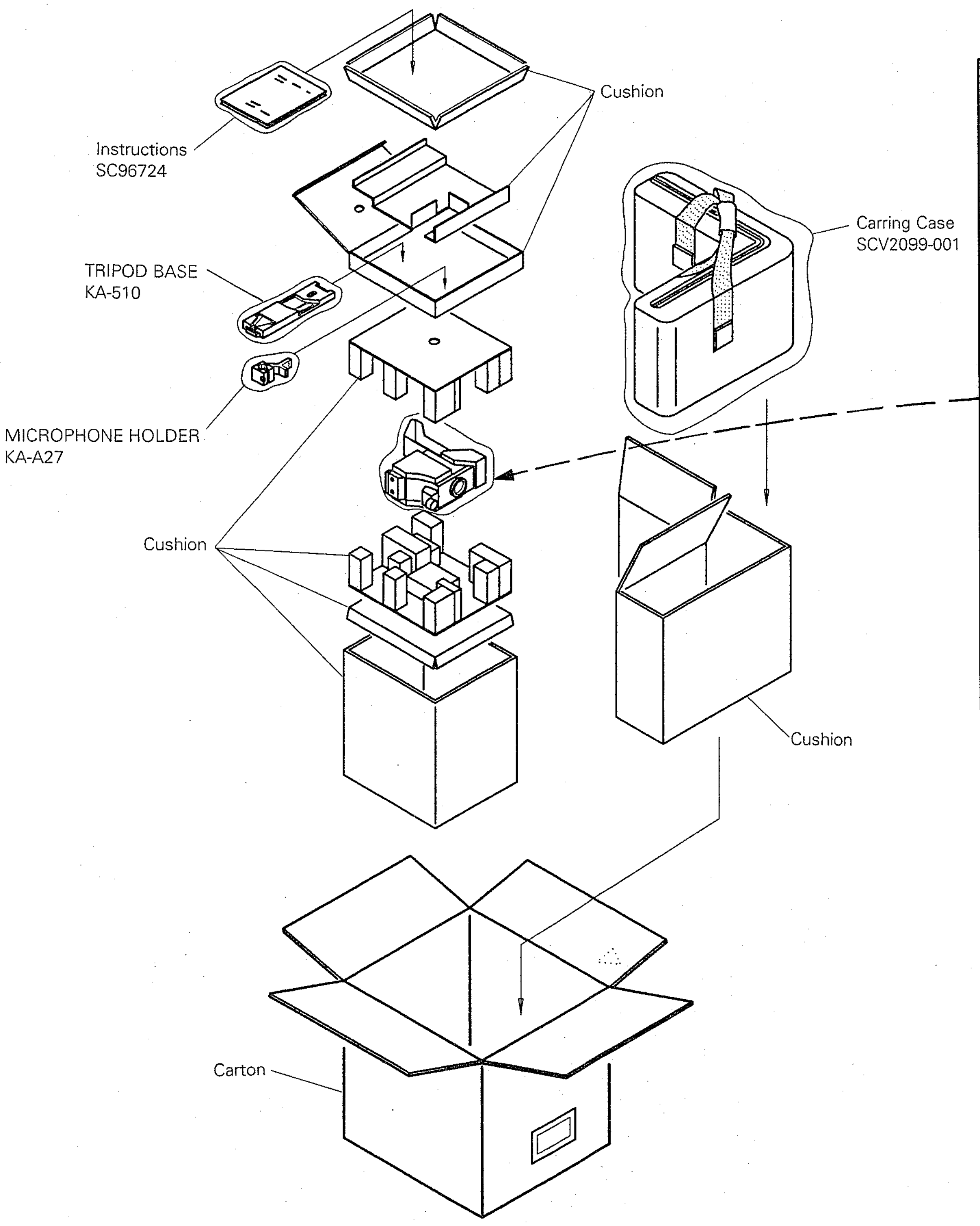
6.24 SW6 BOARD ASSEMBLY LIST 24
〈SCK2306-09-00A〉

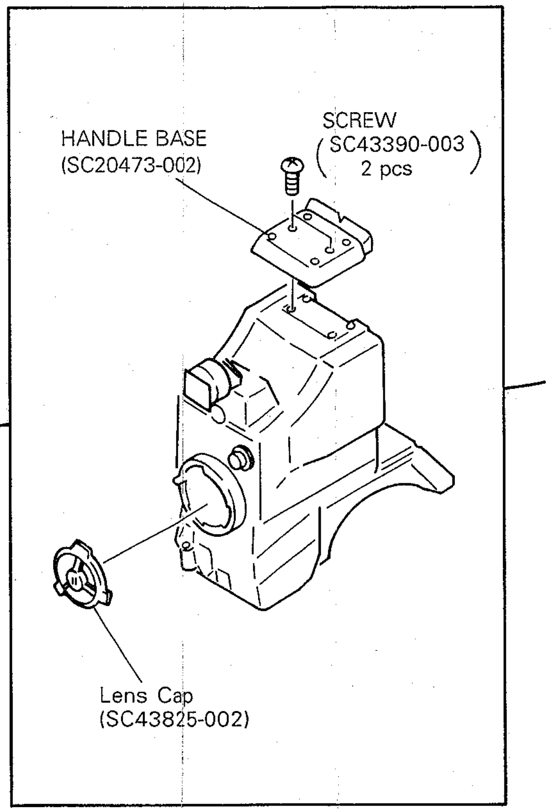
24□□□□□□

Symbol No.	Part No.	Part Name	Description
R8	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
R9	NRSA02J-0R0	M.G.RESISTOR	0 1/10W
VR1	QVPB613-203	TRIM.RESISTOR	20K H.PHASE
VR2	QVPB613-503	TRIM.RESISTOR	50K SC.PHASE
S14	QSS1A12-S01	SLIDE SWITCH	STEREO/MONO
S15	QSS1A12-S01	SLIDE SWITCH	RET
CN12	SCV2447-006	CONNECTOR	6-PIN

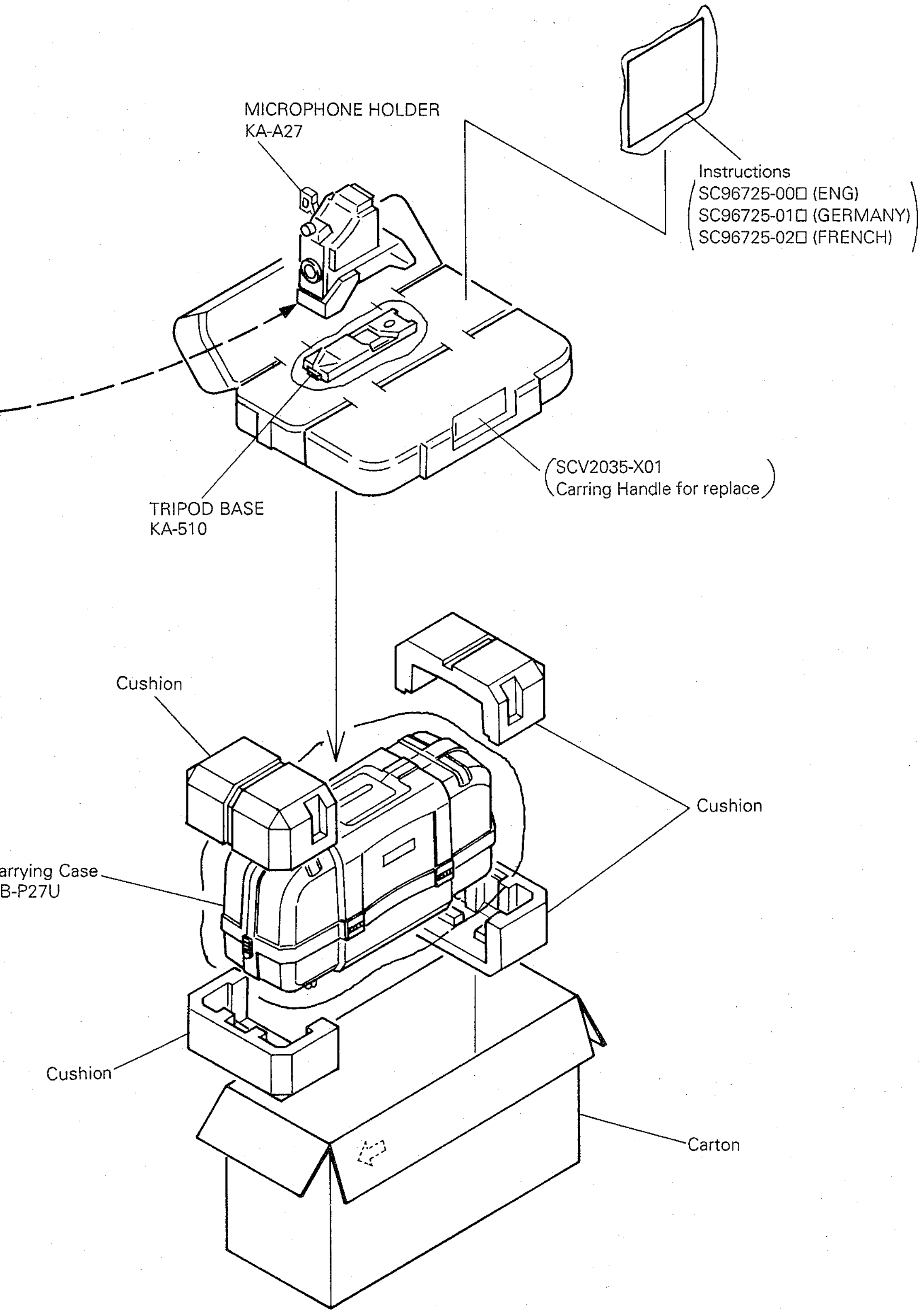
SECTION 7
REPACKING

• CAMERA HEAD REPACKING (FOR U VERSION)


Cushion
Instructions
SC96724
TRIPOD BASE
KA-510
MICROPHONE HOLDER
KA-A27
Cushion
Carring Case
SCV2099-001
Cushion
Carton


HANDLE BASE
(SC20473-002)
SCREW
(SC43390-003
2 pcs)
Lens Cap
(SC43825-002)

• CAMERA HEAD REPACKING (FOR E VERSION)


MICROPHONE HOLDER
KA-A27
Instructions
SC96725-00□ (ENG)
SC96725-01□ (GERMANY)
SC96725-02□ (FRENCH)
TRIPOD BASE
KA-510
(SCV2035-X01
Carring Handle for replace)
Cushion
Cushion
Carrying Case
CB-P27U
Cushion
Carton

NOTE: ACCESSORIES ARE SUBJECT TO CHANGE DEPEND ON SALES VERSIONS.

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